# WPPC-1501-5250 Industrial Panel PC

User Manual Rev.01, Sep. 2011

## Statement



All product specifications are subject to change without prior notice

## Packing List

- ☐ WPPC-1501-5250 x 1
- ☐ Mounting Screws pack x 1
- ☐ RJ50 (COM PORT) cable x 1
- ☐ SATA cable x 1
- ☐ SATA Power cable x 1
- ☐ Y-cable x 1
- ☐ Driver CD (Include user's manual) x 1

## Ordering Information

**STANDARD:**

☐ WPPC-1501-5250

15" Industrial XGA(1024x768) TFT Touch Panel Computer with Intel® Atom D525 Dual core processor and ICH8M chipset, 6xCOM / 1xLAN / 1xVGA / 4xUSB / 1xPS2 / 1xAudio / 1xDIO(Chas Drawer), Plug-in connector, Smart Fan design

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# Chapter 1 Product Information

This chapter introduces the product features, jumper and connector information.

## 1.1 General Description

**WPPC-1501-5250** is 15” Industrial XGA(1024x768) TFT LCD Touch Panel Computer system that can support Atom D525 Dual core processor.

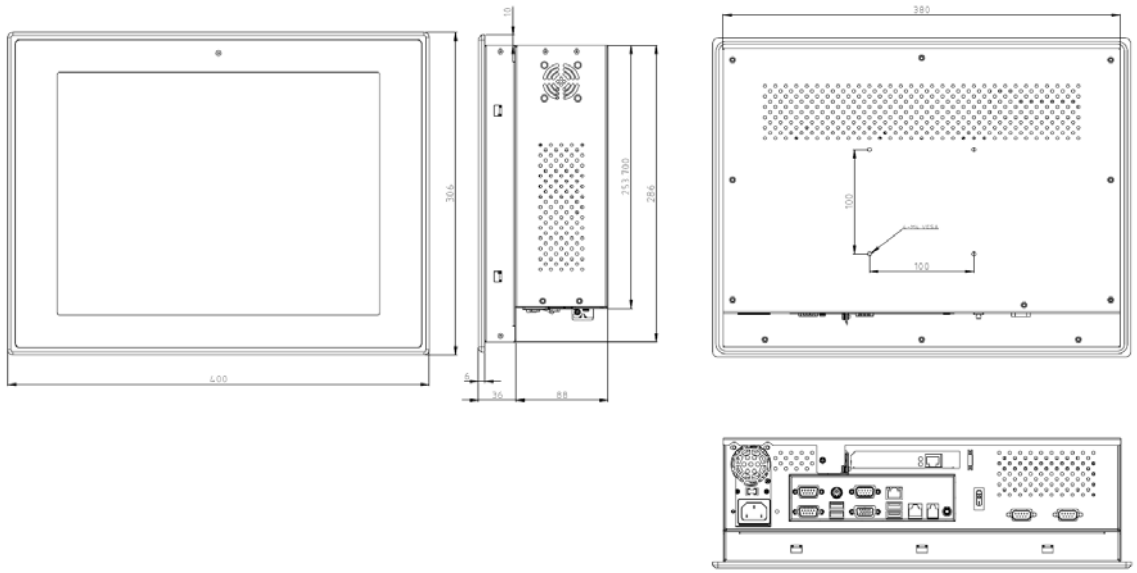
**WPPC-1501-5250** supports Windows® 2000, Windows® XP, Windows® XP embedded, Windows® 7, suitable for the most endurable operation.

## 1.2 Features

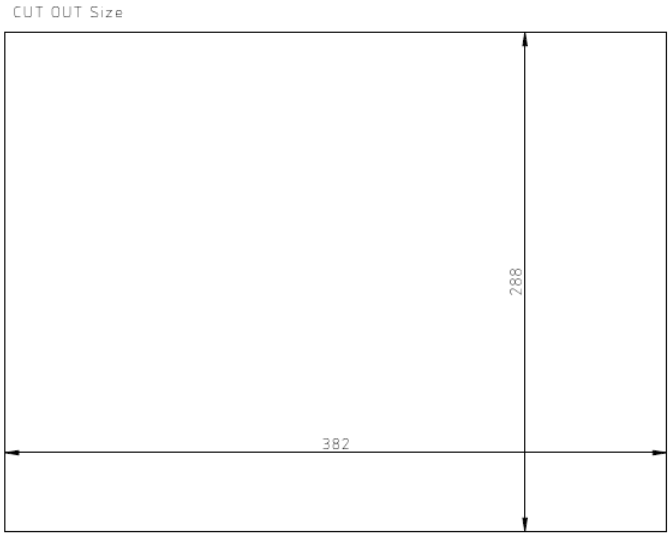
| | | |
|---|---|---|
| **Front Frame** | | Steel |
| **Display** | **Display Type** | 15” Industrial XGA TFT LCD |
| | **Resolution** | 1024 x 768 pixels |
| | **Luminance / Brightness** | 250 cd/$m^2$ |
| | **Color** | 16.2M colors (RGB 8-bits) |
| | **Pixel Pitch (H/V)** | 0.297 mm X 0.297 mm |
| | **Contrast Ratio** | 700 : 1 (typ.) |
| | **Viewing Angle (H/V)** | 140 ˚ / 125 ˚ (typ.) |
| | **Backlight MTBF** | 30,000 hrs (typ.) |
| | **Touch Screen Type** | 5-Wire Resistive Touch Screen |
| **Main System** | **System Board** | WMIX-D5250DF mini-ITX Industrial Mother Board |
| | **CPU** | Intel Atom D525 1.8GHz Dual core processor onboard |
| | **Chipset** | Intel D525 + ICH8M |
| | **Memory** | 2 x 204-pin DDR3 800 SO DIMM SDRAM, max. up to 4GB |
| | **Onboard Graphic** | Intel® GMA3150 Graphics Core |
| | **System I/O** | 4xUSB, 6xCOM[1xRJ50 (10P10C), 4x(RS-232), 1x(RS-232/422/485); all support 12V/5V/RI by jumper selector], 1xVGA, 1xLAN(RTL8111E), 1xAudio-out, 1xPS2 for Y-cable |
| **Storage support** | | 1x2.5" HDD, 2x3.5” HDD, 1xCF |
| **Expansion Slot** | | 1 x miniPCIe, 1xPCI |
| **Power Supply** | | DC12V Plug-in connector |
| **Mounting** | | VESA 100/Panel mount supports |
| **Operation Temperature** | | 0°C~50°C |
| **Storage temperature** | | -20°C~80°C |
| **Relative Humidity** | | 0%~90% (non-condensing) |
| **Dimensions** | | 400mm (W) x 306mm (D) x 118.2mm(H) |
| **Weight** | | Gross: 9.6Kg/21.1Lb<br>Net: 8Kg/17.6Lb |

## 1.3 Dimensions

The following diagrams show you dimensions and outlines of **WPPC-1501-5250.**

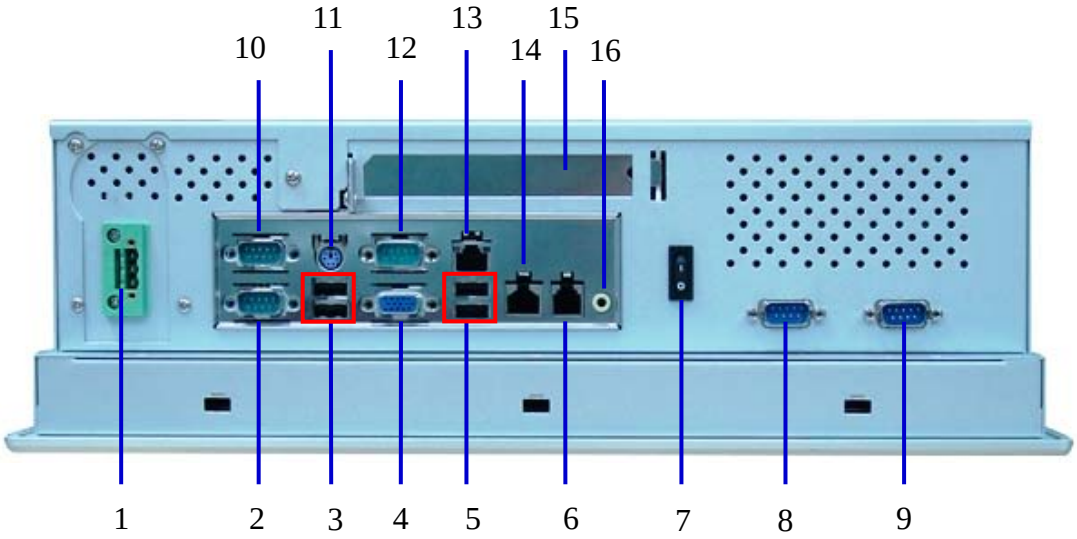



Panel mount cutting and screws holes.



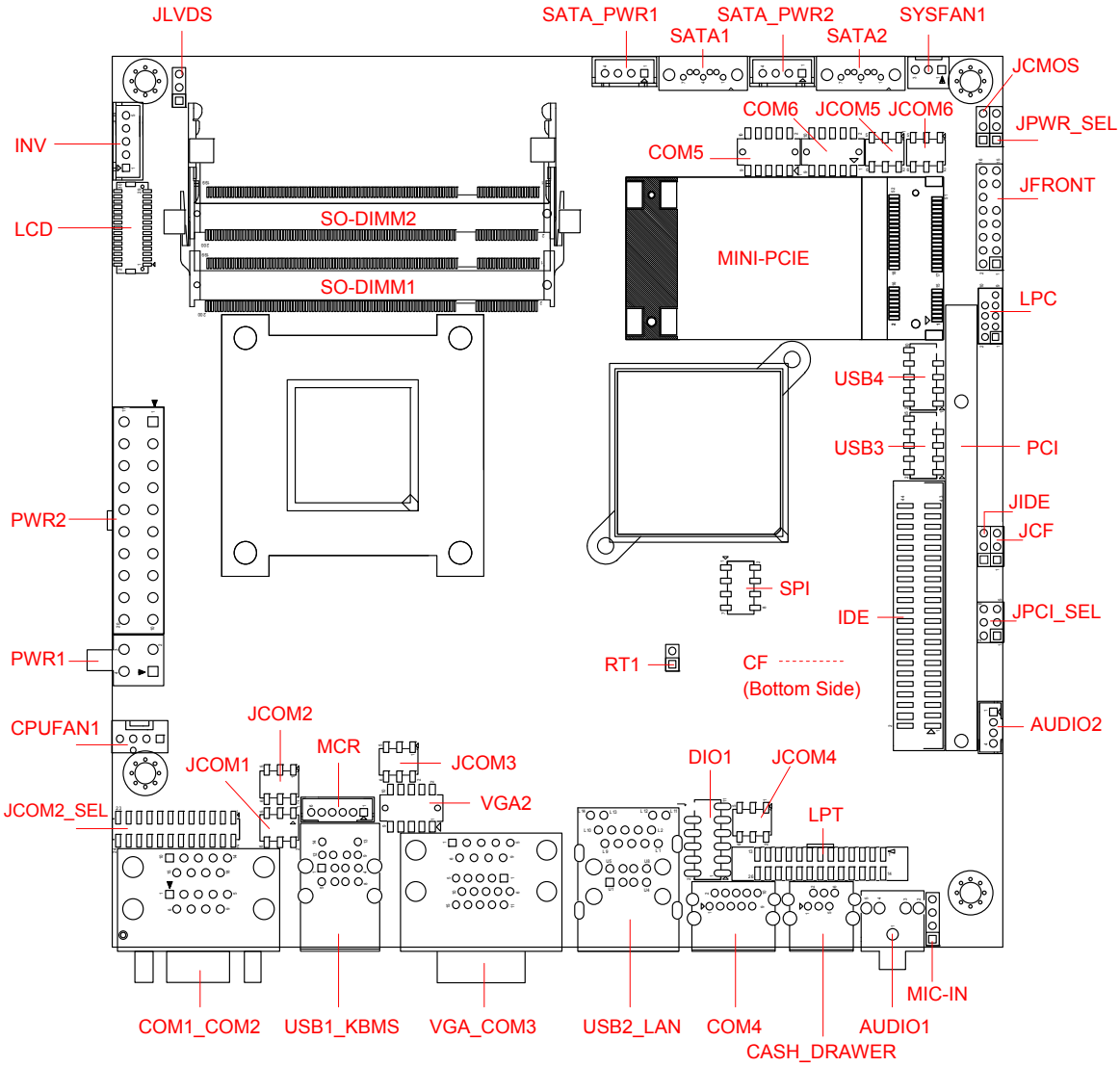
## 1.4 I/O Outlets

### Rear I/O




1. DC12V Plug-in connector
2. COM1
3. USB (2 ports)
4. VGA
5. USB (2 ports)
6. DIO (Cash Drawer) port
7. Power on button
8. COM5
9. COM6
10. COM2
11. PS2 (Keyboard/Mouse)
12. COM3
13. LAN
14. COM4 (RJ50)
15. PCI Expansion Slot
16. Audio (Line-out)

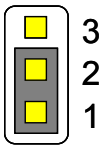
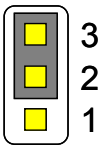
## 1.5 M/B PCB Layout



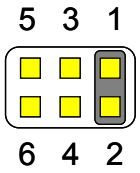
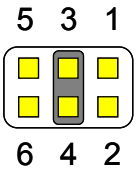
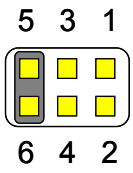
## 1.6 Jumper Setting

**WPPC-1501-5250** has a number of jumpers inside the chassis that allow you to configure your system to suit your application. The table below lists the functions of the various jumpers.

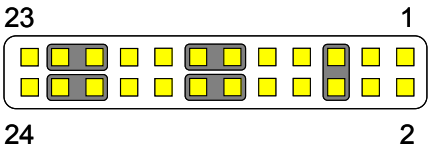
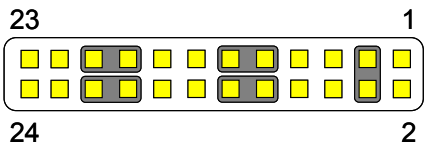
**JCMOS: CMOS Clear**

| Pin No. | 1-2 | 2-3 |
|---|---|---|
| Function | Normal Operation (Default) | Clear CMOS Contents |
| Jumper Setting |  |  |

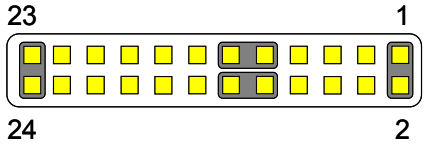
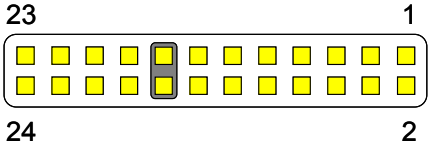
**JCOM1/JCOM2/JCOM3/JCOM4/JCOM5/JCOM6: (5V/12V/RI) Select**

| Pin No. | 1-2 | 3-4 | 5-6 |
|---|---|---|---|
| Function | +5V | Modem Ring In (Default) | +12V |
| Jumper Setting |  |  |  |

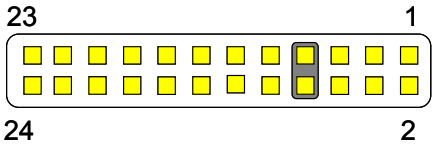
**JCOM2_SEL: COM2 (RS-232/RS-422/RS-485) Select (1/3)**

| Pin No. | 5-6, 11-13, 12-14, 19-21, 20-22 | 3-4, 9-11, 10-12, 17-19, 18-20 |
|---|---|---|
| Function | RS-232 (Default) | RS-422 |
| Jumper Setting |  |  |

**JCOM2_SEL: COM2 (RS-232/RS-422/RS-485) Select (2/3)**

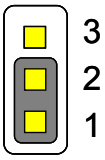
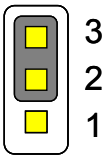
| Pin No. | 1-2, 9-11, 10-12, 23-24 | 15-16 |
|---|---|---|
| Function | RS-485 | RS-422 RX 100Ω Termination |
| Jumper Setting |  |  |

**JCOM2_SEL: COM2 (RS-232/RS-422/RS-485) Select (3/3)**

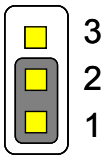
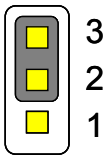
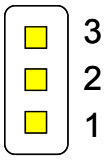
| Pin No. | 7-8 | |
|---|---|---|
| Function | RS-422 TX 100Ω / RS-485 Termination | |
| Jumper Setting |  | |

Note: Not Recommended for RS-422 TX 100Ω Termination

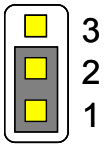
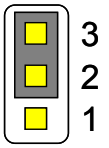
**JCF: Compact Flash (Master/Slave) Select**

| Pin No. | 1-2 | 2-3 |
|---|---|---|
| Function | Master | Slave (Default) |
| Jumper Setting |  |  |

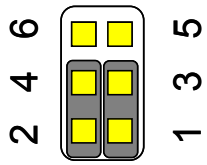
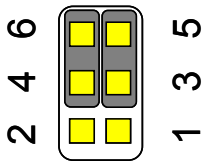
**JIDE: IDE ATA Mode Select**

| Pin No. | 1-2 | 2-3 | All Open |
|---|---|---|---|
| Function | Max. UDMA Mode 1 (33M) | Auto Detect UDMA Mode (Default) | Min. UDMA Mode 2 (66M) |
| Jumper Setting |  |  |  |

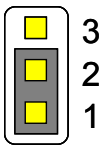
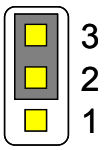
**JLVDS: LCD Power (+3.3V/+5V) Select**

| Pin No. | 1-2 | 2-3 |
|---|---|---|
| Function | LCD Power +3.3V (Default) | LCD Power +5V |
| Jumper Setting |  |  |

**JPCI_SEL: PCI Riser card support slot select**

| Pin No. | 1-3, 2-4 | 3-5, 4-6 |
|---|---|---|
| Function | Not support PCI Riser card slot 3 (Default) | Support PCI Riser card slot 3 |
| Jumper Setting |  |  |

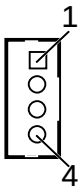
**JPWR_SEL: AT / ATX Mode Select**

| Pin No. | 1-2 | 2-3 |
|---|---|---|
| Function | AT Mode | ATX Mode (Default) |
| Jumper Setting |  |  |

## 1.7 Connector Function List

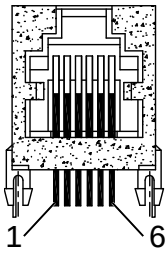
| Connector | Function | Note |
|---|---|---|
| AUDIO1 | Line-out connector | |
| AUDIO2 | 6W amplifier Line-out connector | |
| CASH_DRAWER | Cash Drawer with RJ11-6P6C connector | |
| COM1_COM2 | Serial port connector | |
| CF | Copact Flash connector | |
| COM4 | Serial port with RJ50-10P10C connector | |
| COM5,COM6 | Serial port with Box-header | |
| CPUFAN1 | CPUFAN 4-pin connector | |
| DIO1 | Digital Input/output with Pin-header | |
| IDE | IDE with Box-header | |
| INV | LCD inverter connector | |
| JFRONT | Front Panel with Pin-header | |
| LCD | LVDS connector | |
| LPC | Reserved for debug | |
| LPT | Parallel Port with Box-header | |
| MCR | MCR with Box-header | |
| MIC-IN | Micro phone input with Pin-header | |
| MINI-PCIE | Mini PCI Express connector | |
| PCI | PCI slot | |
| PWR1 | ATX 2x2 connector | |
| PWR2 | ATX 2x10 connector (Reserved) | |
| RT1 | Reserved for external thermistor | |
| SATA1, SATA2 | SATA connector | |
| SATA_PWR1, | SATA Power with Box-header | |
| SO-DIMM1, | DDR3 SO-DIMM connector | |
| SPI | Reserved for debug | |
| SYSFAN1 | System FAN connector | |
| USB1_KBMS | USBx2, PS2 Keyboard and PS2 Mouse | |
| USB2_LAN | USBx2 and RJ45 connector | |
| USB3, USB4 | USBx2 with Pin-header | |
| VGA_COM3 | VGA and serial port connector | |
| VGA2 | VGA with Box-header | |

## 1.8 Internal Connector Pin Define



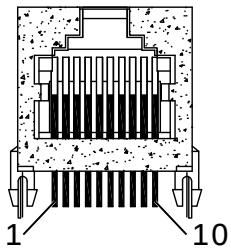

**AUDIO2: Audio Amplifier Output with Wafer connector (2.0mm)**

| Pin No. | Signal |
|---|---|
| 1 | Audio Amplifier Out Right |
| 2 | Ground |
| 3 | Ground |
| 4 | Audio Amplifier Out Left |



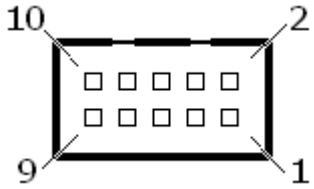

**CASH_DRAWER: Digital IO with RJ-11-6P6C connector**

| Pin No. | Signal |
|---|---|
| 1 | Ground |
| 2 | DIO_Out1 (bit1) |
| 3 | +12V |
| 4 | DIO_IN0 (bit2) |
| 5 | DIO_Out0 (bit0) |
| 6 | Ground |




**COM4 : Serial Port with RJ50-10P10C connector**

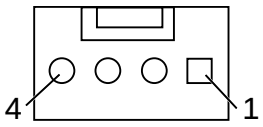
| Pin No. | Signal | Pin No. | Signal |
|---|---|---|---|
| 1 | NC | 2 | DCD |
| 3 | DSR | 4 | RXD |
| 5 | RTS | 6 | TXD |
| 7 | CTS | 8 | DTR |
| 9 | Ground | 10 | RI/+5V/+12V |




**COM5, COM6: Serial Port with Box-header (2.0mm)**

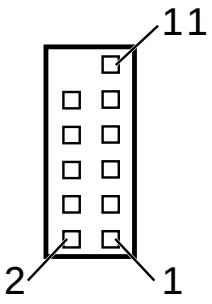
| Pin No. | Signal | Pin No. | Signal |
|---|---|---|---|
| 1 | DCD | 2 | DSR |
| 3 | RXD | 4 | RTS |
| 5 | TXD | 6 | CTS |
| 7 | DTR | 8,10 | RI/+5V/+12V |
| 9 | Ground | | |

**CPUFAN1: 4Pin FAN connector**



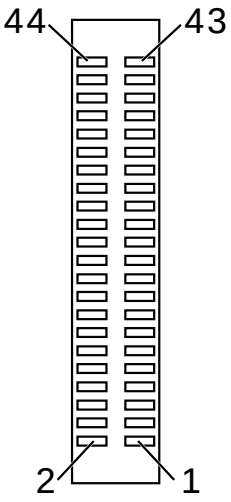

| Pin No. | Signal |
|---|---|
| 1 | Ground |
| 2 | Fan Power (+12V) |
| 3 | Speed Sense |
| 4 | Control |

**DIO1: Digital I/O with Pin-header (2.54mm)**



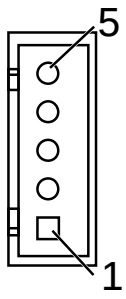

| Pin No. | Signal | Pin No. | Signal |
|---|---|---|---|
| 1 | DIO-Out0 bit0 | 2 | DIO-In0 bit2 |
| 3 | DIO-Out1 bit1 | 4 | DIO-In1 bit3 |
| 5 | DIO-Out2 bit6 | 6 | DIO-In2 bit4 |
| 7 | DIO-Out3 bit7 | 8 | DIO-In3 bit5 |
| 9 | +12V | 10 | +5V |
| 11 | Ground | 12 | NC |

**IDE: IDE with Box-header (2.0mm)**



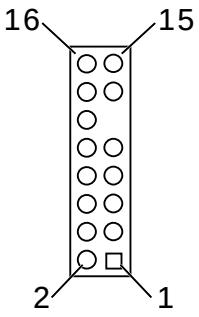

| Pin No. | Signal | Pin No. | Signal |
|---|---|---|---|
| 1 | RESET# | 2 | Ground |
| 3 | Data 7 | 4 | Data 8 |
| 5 | Data 6 | 6 | Data 9 |
| 7 | Data 5 | 8 | Data 10 |
| 9 | Data 4 | 10 | Data 11 |
| 11 | Data 3 | 12 | Data 12 |
| 13 | Data 2 | 14 | Data 13 |
| 15 | Data 1 | 16 | Data 14 |
| 17 | Data 0 | 18 | Data 15 |
| 19 | Ground | 20 | NC |
| 21 | DMA REQ | 22 | Ground |
| 23 | IOW# | 24 | Ground |
| 25 | IOR# | 26 | Ground |
| 27 | IOCHRDY | 28 | Pull-down |
| 29 | DMA ACK# | 30 | Ground |
| 31 | INT REQ | 32 | NC |
| 33 | SA1 | 34 | UDMA DETECT |
| 35 | SA0 | 36 | SA2 |
| 37 | HDC CS1# | 38 | HDC CS3# |
| 39 | HDD Active# | 40 | Ground |
| 41 | +5V | 42 | +5V |
| 43 | Ground | 44 | NC |

**INV: Inverter with Box-header (2.50 mm)**



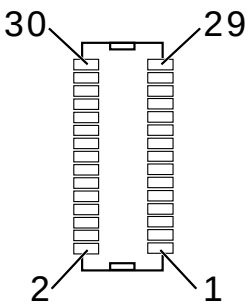

| Pin No. | Signal |
|---|---|
| 1 | +12V |
| 2 | +12V |
| 3 | Ground |
| 4 | Inverter Brightness Abject |
| 5 | Inverter Enable |

## JFRONT: Front Panel with Pin-header (2.54mm)




| Pin No. | Signal | Pin No. | Signal |
|---|---|---|---|
| 1 | +5V (470 Ohm),<br>(Power LED+) | 2 | +5V (470 Ohm),<br>(HDD LED+) |
| 3 | NC | 4 | HDD LED#,<br>(HDD LED-) |
| 5 | Ground,<br>(Power LED-) | 6 | 5VSB (470 Ohm),<br>(Suspend LED+) |
| 7 | RESET#,<br>(Reset Button Pin1) | 8 | Suspend LED#,<br>(Suspend LED-) |
| 9 | Ground,<br>(Reset Button Pin2) | 10 | FSPK# (Beep),<br>(Speaker-) |
| 11 | NC | 12 | NC |
| 13 | SW_PWR#,<br>(Power ON Button Pin1) | 14 | NC |
| 15 | Ground,<br>(Power ON Button Pin2) | 16 | +5V,<br>(Speaker+) |

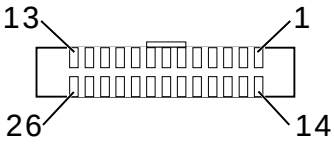
## LCD: LVDS Panel Signal with Box-header (1.0mm)




| Pin No. | Signal | Pin No. | Signal |
|---|---|---|---|
| 1 | Ground | 2 | Ground |
| 3 | NC | 4 | NC |
| 5 | NC | 6 | NC |
| 7 | NC | 8 | NC |
| 9 | NC | 10 | NC |
| 11 | NC | 12 | NC |
| 13 | Ground | 14 | Ground |
| 15 | L_DC3P | 16 | L_DC3N |
| 17 | L_CLKP | 18 | L_CLKN |
| 19 | L_DC2P | 20 | L_DC2N |
| 21 | L_DC1P | 22 | L_DC1N |
| 23 | L_DC0P | 24 | L_DC0N |
| 25 | Ground | 26 | Ground |
| 27 | LVDS Power | 28 | LVDS Power |
| 29 | LVDS Power | 30 | LVDS Power |

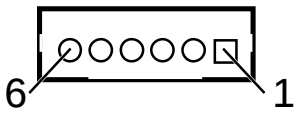
Note1: LVDS Power = +5V or +3.3V (Default)

Note2: Pin15-Pin24 for LVDS 18/24 bit




**LPT: Parallel Port with Box-header (2.0mm)**

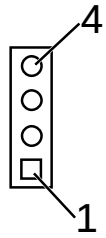
| Pin No. | Signal | Pin No. | Signal |
|---|---|---|---|
| 1 | Strobe# | 14 | Auto Form Feed# |
| 2 | Data 0 | 15 | Error# |
| 3 | Data 1 | 16 | Initialization# |
| 4 | Data 2 | 17 | Printer Select IN# |
| 5 | Data 3 | 18 | Ground |
| 6 | Data 4 | 19 | Ground |
| 7 | Data 5 | 20 | Ground |
| 8 | Data 6 | 21 | Ground |
| 9 | Data 7 | 22 | Ground |
| 10 | Acknowledge# | 23 | Ground |
| 11 | Busy | 24 | Ground |
| 12 | Paper Empty | 25 | Ground |
| 13 | Printer Select | 26 | Ground |




**MCR: Internal Keyboard with Box-header (2.0mm)**

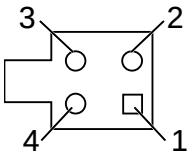
| Pin No. | Signal |
|---|---|
| 1 | +5V |
| 2 | KCLK_CON |
| 3 | KCLK_KBC |
| 4 | KDAT_CON |
| 5 | KDAT_KBC |
| 6 | Ground |

Note：If not use MCR need short (Pin2 to Pin3) and (Pin4 to Pin5) to enable PS2 Keyboard



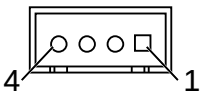

**MIC-IN: Micro phone input with Pin-header**

| Pin No. | Signal |
|---|---|
| 1 | MIC Input Left |
| 2 | MIC Jack Detection |
| 3 | Audio Ground |
| 4 | MIC Input Right |



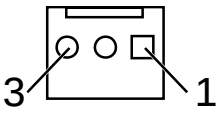

**PWR1: ATX 2x2 +12V Input**

| Pin No. | Signal | Pin No. | Signal |
|---|---|---|---|
| 1 | Ground | 2 | Ground |
| 3 | +12V | 4 | +12V |



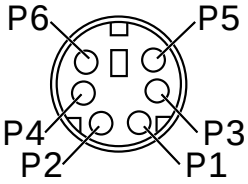

**SATA_PWR1, SATA_PWR2: SATA Power with Box-header (2.50mm)**

| Pin No. | Signal |
|---|---|
| 1 | +5V |
| 2 | Ground |
| 3 | Ground |
| 4 | +12V |



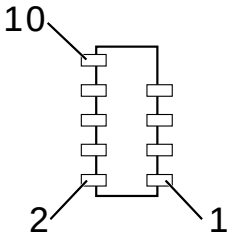

**SYSFAN: System FAN 3 Pin connector**

| Pin No. | Signal |
|---|---|
| 1 | Ground |
| 2 | Fan Power (+12V) |
| 3 | Speed Sense |



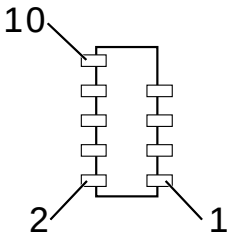

**USB1_KBMS: USBx2, PS2 Keyboard and PS2 Mouse connector (PS2 Y-Cable)**

| Pin No. | Signal |
|---|---|
| U1 | USB Power (+5V) |
| U2 | USB Data0N |
| U3 | USB Data0P |
| U4 | USB_Ground |
| U5 | USB Power (+5V) |
| U6 | USB Data1N |
| U7 | USB Data1P |
| U8 | USB_Ground |
| P1 | PS2_Ground |
| P2 | PS2 Keyboard Data |
| P3 | PS2 Mouse Data |
| P4 | PS2 Power (+5V) |
| P5 | PS2 Keyboard Clock |
| P6 | PS2 Mouse Clock |



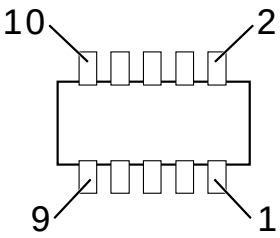

**USB3: USB3/4 Port with Pin-header (2.54mm)**

| Pin No. | Signal | Pin No. | Signal |
|---|---|---|---|
| 1 | USB Power (+5V) | 2 | USB Power (+5V) |
| 3 | USB DATA4N | 4 | USB DATA5N |
| 5 | USB DATA4P | 6 | USB DATA5P |
| 7 | USB Ground | 8 | USB Ground |
| 9 | NC | 10 | Shield Ground |




**USB4: USB6/7 Port with Pin-header (2.54mm)**

| Pin No. | Signal | Pin No. | Signal |
|---|---|---|---|
| 1 | USB Power (+5V) | 2 | USB Power (+5V) |
| 3 | USB DATA6N | 4 | USB DATA7N |
| 5 | USB DATA6P | 6 | USB DATA7P |
| 7 | USB Ground | 8 | USB Ground |
| 9 | NC | 10 | Shield Ground |




**VGA2: VGA with Box-header (2.0mm)**

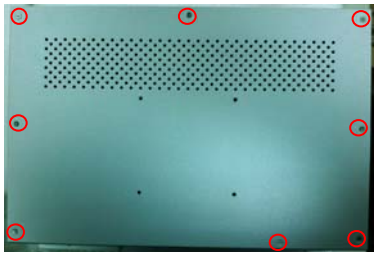
| Pin No. | Signal | Pin No. | Signal |
|---|---|---|---|
| 1 | VGA_RED | 2 | VGA_DDC_DATA |
| 3 | VGA_GREEN | 4 | VGA_DDC_CLK |
| 5 | VGA_BLUE | 6 | Ground |
| 7 | VGA_ HSYNC | 8 | Ground |
| 9 | VGA_ VSYNC | 10 | Ground |

# Chapter 2 Hardware installation

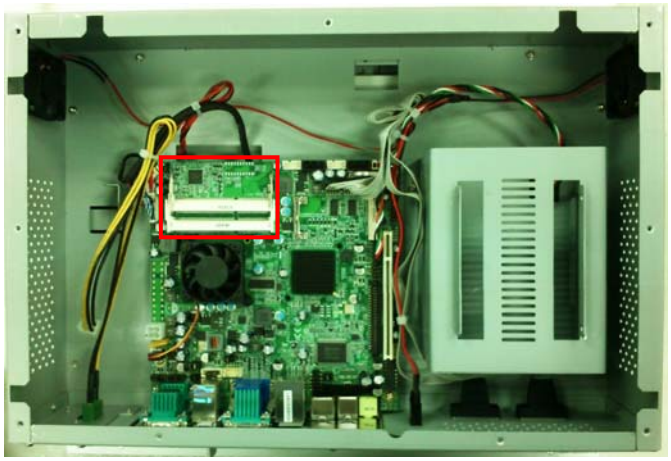
**WPPC-1501-5250** is convenient for your various hardware configurations, such as Memory Module, HDD, Compact Flash. The chapter 2 will show you how to install the hardware. It includes:

## 2.1 Install the memory module

Step 1: Remove the screws on bottom cover (9pcs).



Step 2: Install memory here

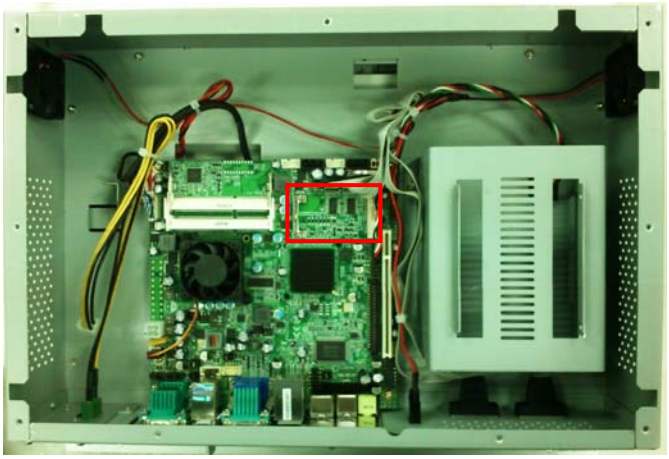


## 2.2 Install the HDD

Insert the 2.5” and 3.5” HDD here

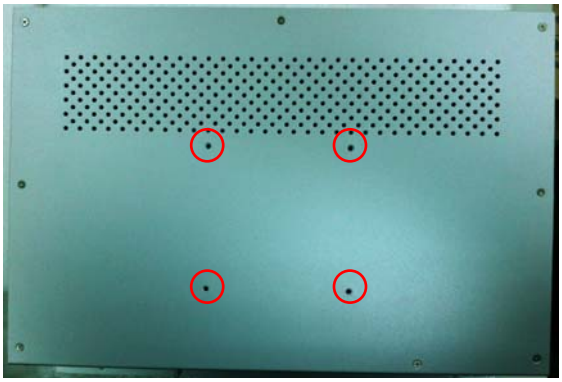
## 2.3 Install the mini-PCIe expansion module

Insert the mini-CPIe module here.



## 2.4 Install the VESA mount Bracket

Connect the Bracket screws (4pcs).



# Chapter 3 BIOS Setup

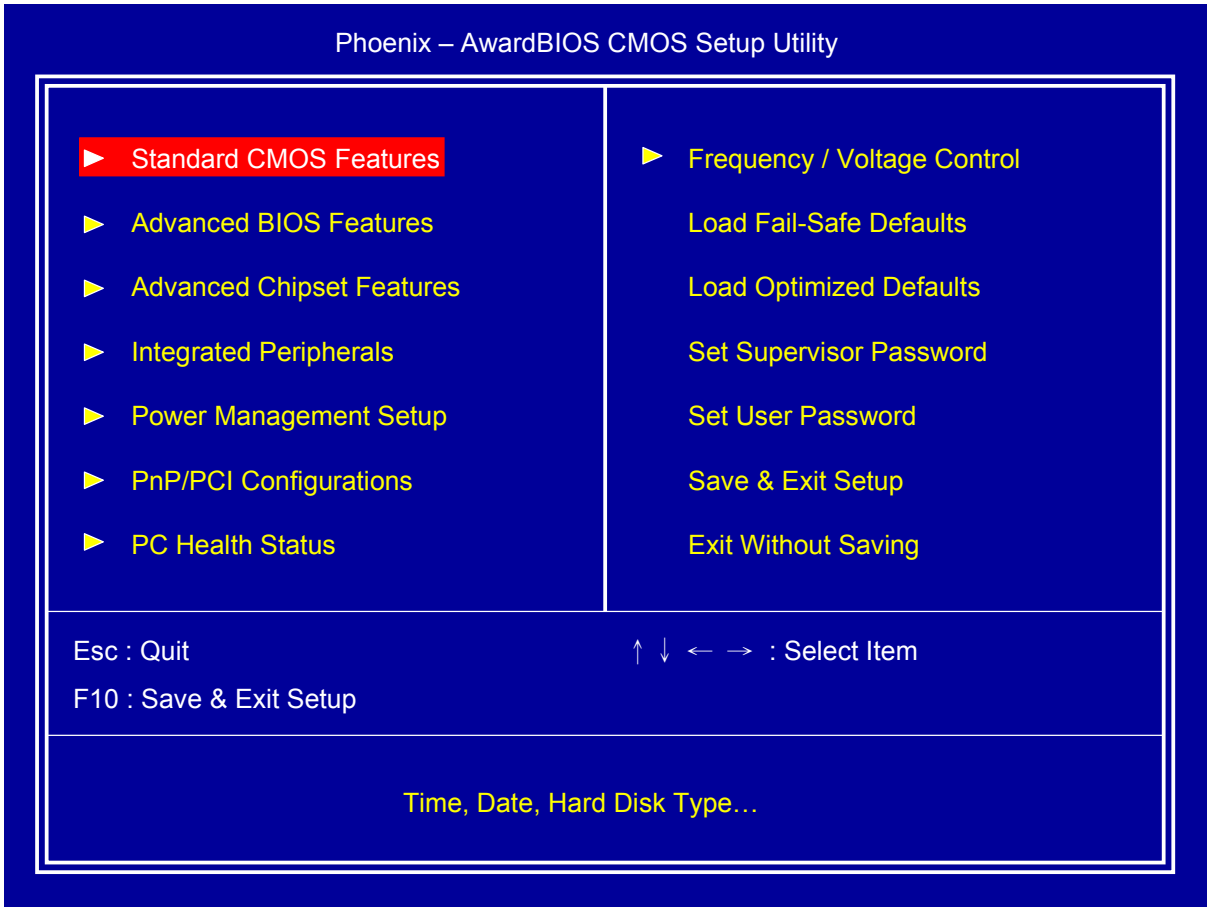
This chapter introduces BIOS setup information.

Power on or reboot the system board, when screen appears message as “Press DEL to enter SETUP“. Press <DEL> key to run BIOS SETUP Utility.

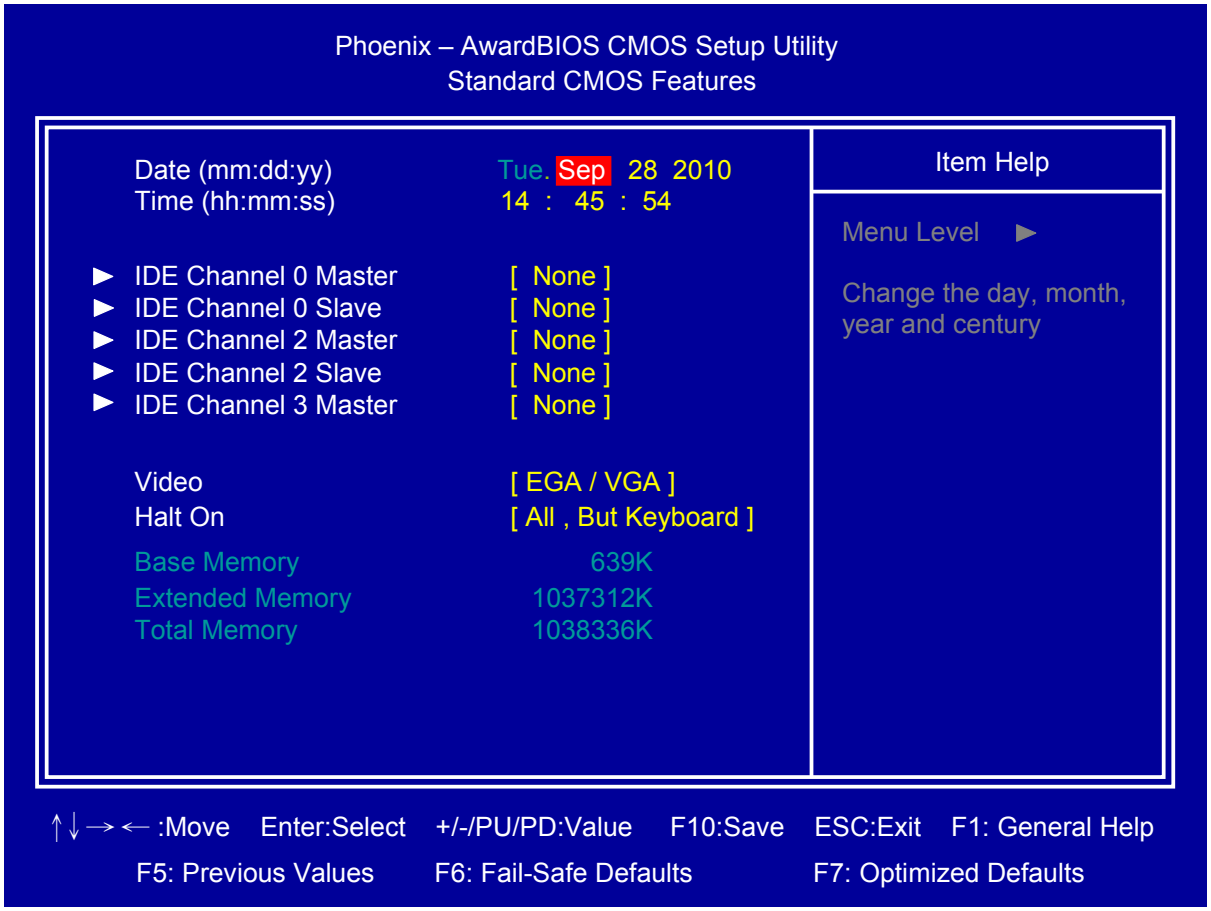
Note: The BIOS configuration for reference only, it may subject to change without prior notice.

## 3.1 Main Menu

Please use arrow keys to select item, then press <Enter> key to accept or enter the sub-menu.



## 3.2 Standard CMOS Features




☐ **Date**

Set system date.

☐ **Time**

Set system time.

☐ **IDE Channel 0 Master/Slave**

Press <Enter> for IDE device automatic detection.

☐ **IDE Channel 2 Master/Slave**

Press <Enter> for IDE device automatic detection.

☐ **IDE Channel 3 Master**

Press <Enter> for IDE device automatic detection.

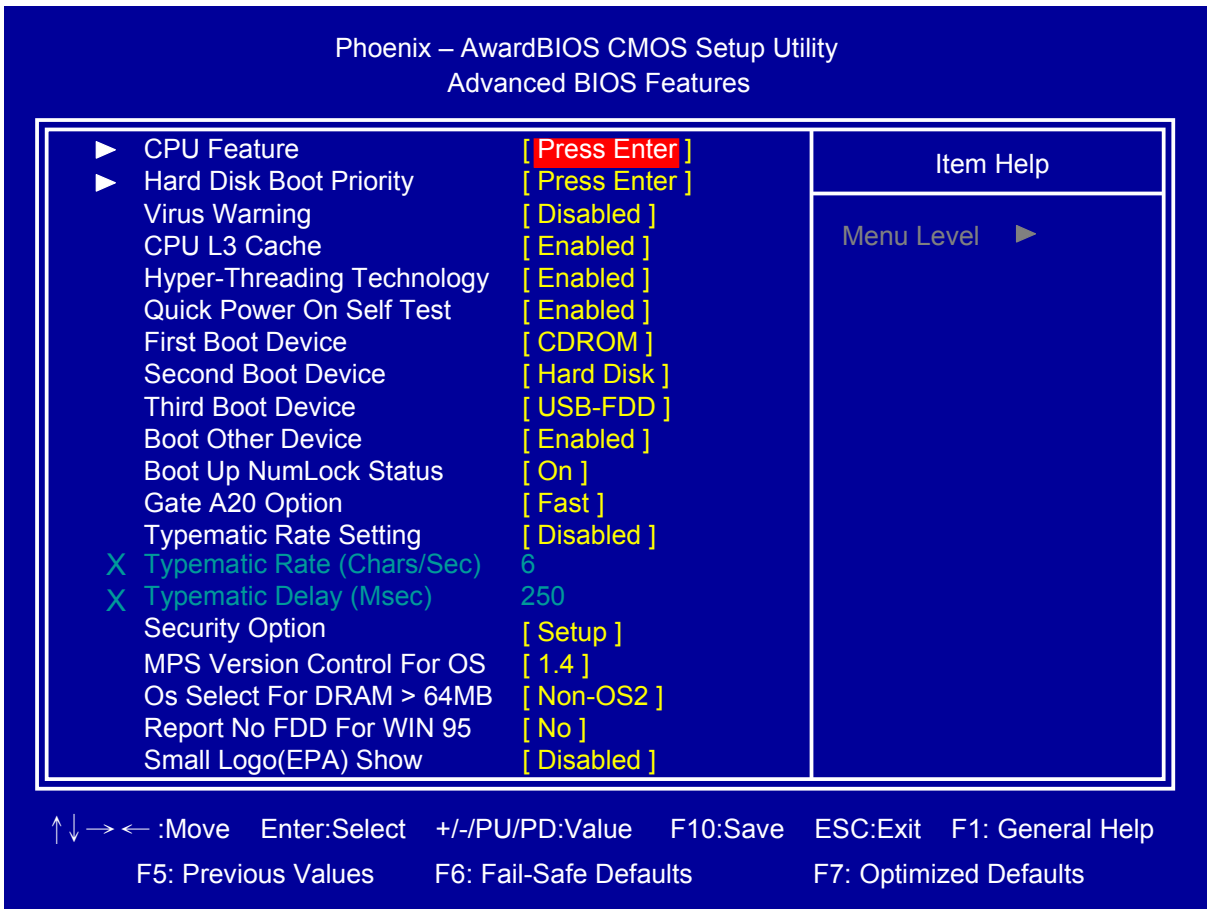
☐ **Video**

Select Video device type.

☐ **Halt on**

Select stop procedure or ignore when error detected during POST (Power On Self Test).

## 3.3 Advanced BIOS Features




☐ **CPU Feature**

Press <Enter> to select CPU parameter.

☐ **Hard Disk Boot Priority**

Press <Enter> to select Hard Disk boot device priority.

☐ **Virus Warning**

Select “Virus Warning” Enabled/Disabled.

☐ **CPU L3 Cache**

Select “CPU L3 Cache” Enabled/Disabled.

☐ **Hyper-Threading Technology**

Select “Hyper-Threading Technology” Enabled/Disabled

☐ **Quick Power On Self Test**

Select “Quick Power On Self Test” Enabled/Disabled.

☐ **First/Second/Third Boot Device**

Select boot device priority.

☐ **Boot Other Device**

Select “Boot Other Device” Enabled/Disabled.

☐ **Boot Up NumLock Status**

Select <NumLock> key ON/Off when system boot up.

☐ **Gate A20 Option**

Select Gate A20 controlled by Keyboard controller (Normal) or Port 92 (Fast).

☐ **Typematic Rate Setting**

Select “Typematic Rate Setting” Enabled to set,

Typematic Rate (Chars/Sec): Number of characters repeated in one second.

Typematic Delay (Msec): When holding one key, set the time between the first and second character displayed.

☐ **Security Option**

Select security mode,

Setup: Require password to permit BIOS setup utility.

System: Require password to permit boot-up and BIOS setup utility.

☐ **MPS Version Control For OS**

Select MPS (Multiprocessor Specification) Version 1.4 to added extended configuration tables to improve support for multiple PCI bus configurations and improve future expandability. It is also required for a secondary PCI bus to work without the need for a bridge. Select Version 1.1 for older Operating Systems.

☐ **OS Select For DRAM > 64M**

Select “OS2” only if you are running older version of IBM OS/2 Operating System with greater than 64MB of RAM on the system. Otherwise select “Non-OS/2” setting.

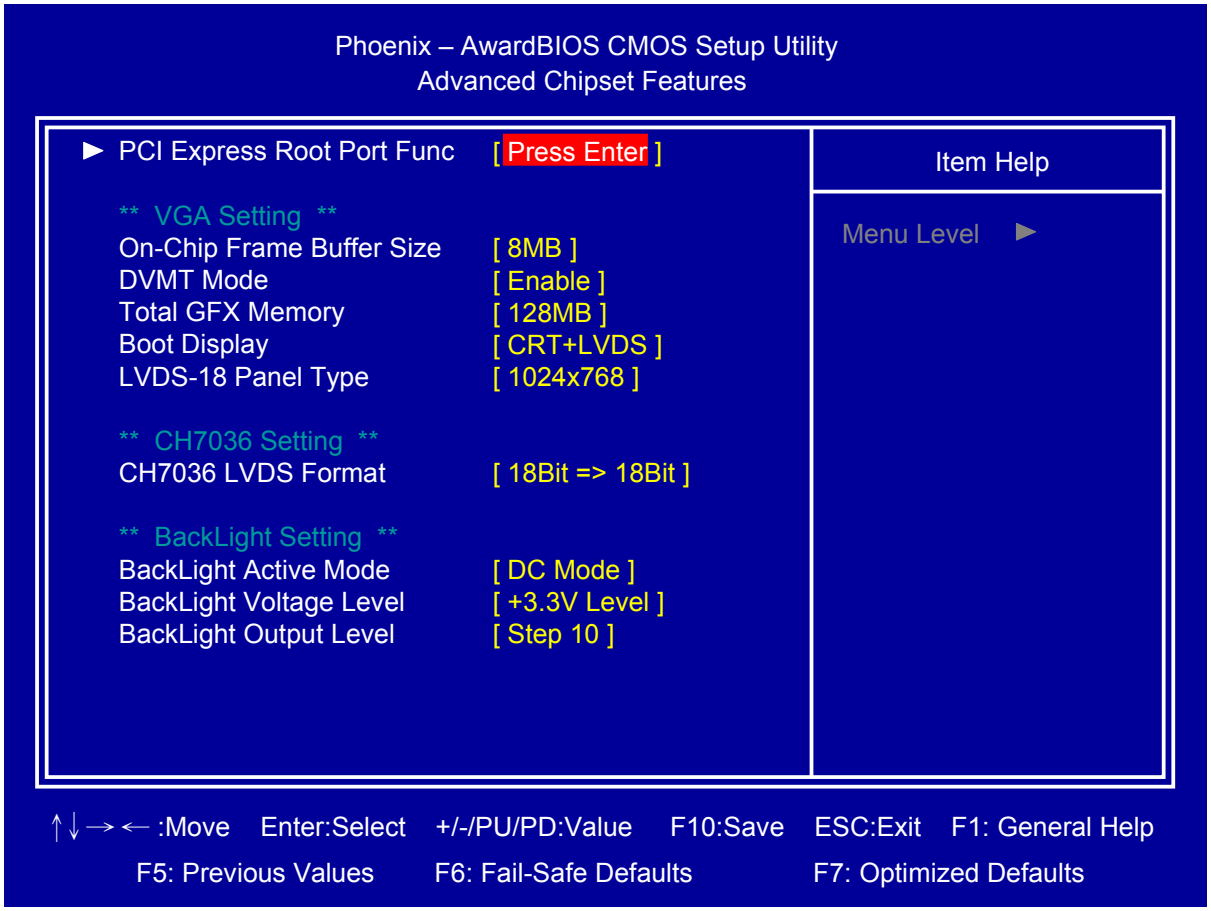
☐ **Report No FDD For WIN 95**

If running Windows 95/98 without floppy diskdrive, select “Enabled” to release IRQ6. This is required to pass Windows 95/98's SCT test, If select “Disabled”, BIOS will not report missing floppy drive to Win95/98.

☐ **Small Logo(EPA) Show**

Select EPA (Environmental Protection Agency) Energy Star logo appears during the system boot-up process.

## 3.4 Advanced Chipset Features




☐ **PCI Express Root Port Func**

Press <Enter> to setting PCI Express function

☐ **On-Chip Frame Buffer Size**

Select share system memory 1MB or 8MB.

☐ **DVMT Mode**

DVMT (Dynamic Video Memory Technology) allowing the system to dynamically allocate memory resources according to the demands of the system at any point in time, that improve efficiency of the memory allocated to either system or graphics processor.

☐ **Total GFX Memory**

Select Total GFX Memory: 128MB, 256MB, or MAX. (For Win XP, the MAX Value is base on system memory size, 512MB for 1GB DRAM, 768MB for 1.5GB to 2GB, 1GB fro above 2GB.)

☐ **Boot Display**

Select boot display device type: CRT, LVDS, or CRT+LVDS.

☐ **LVDS-18 Panel Type**

Select LCD 18 bit resolution

☐ **CH7036 LVDS Format**

Select CH7036 LVDS Format type: 18Bit→18Bit or 18Bit→24Bit.

☐ **BackLight Active Mode**

Select BackLight Active Mode: PWN Mode or DC Mode.

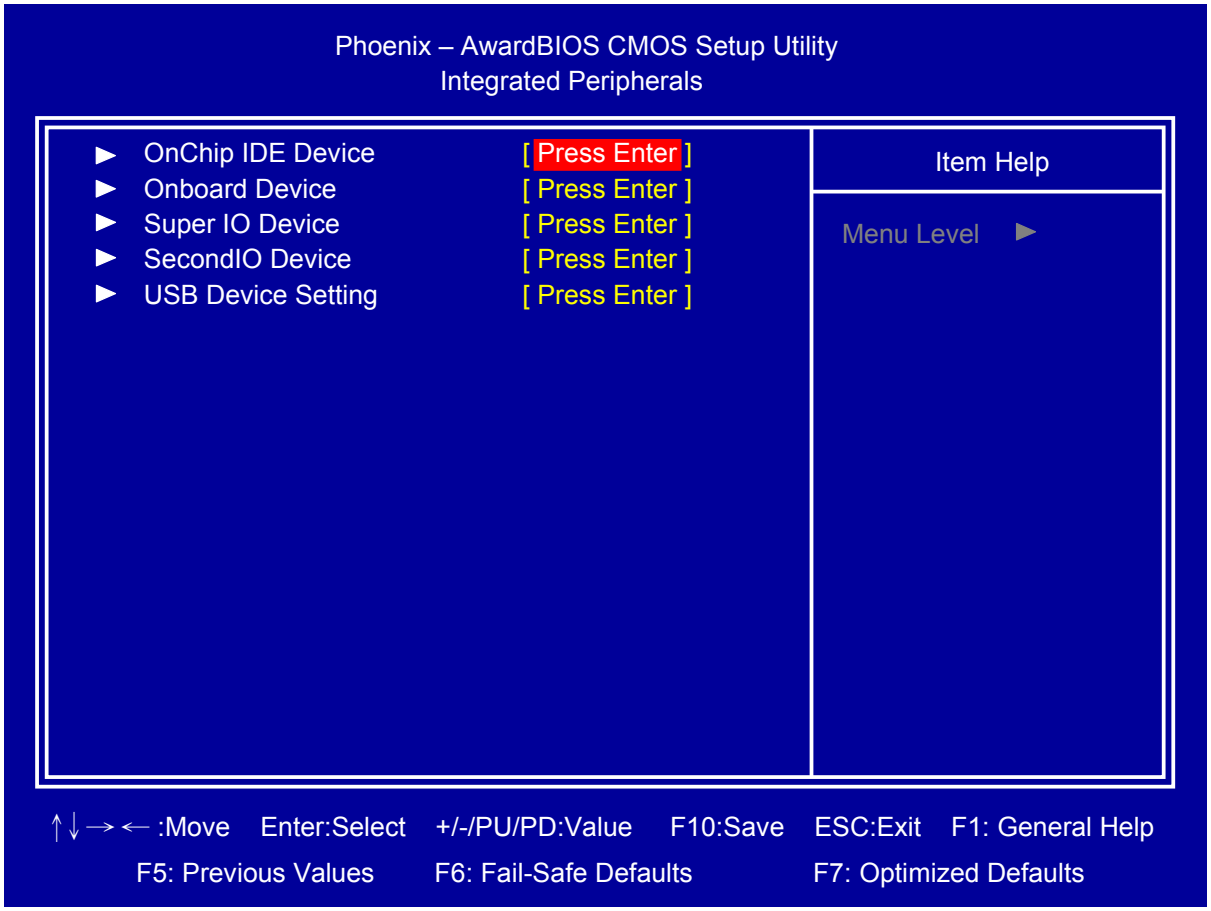
☐ **BackLight Voltage Mode**

Select BackLight Voltage Mode: +5.0V Level or +3.3V Level.

☐ **BackLight Output Mode**

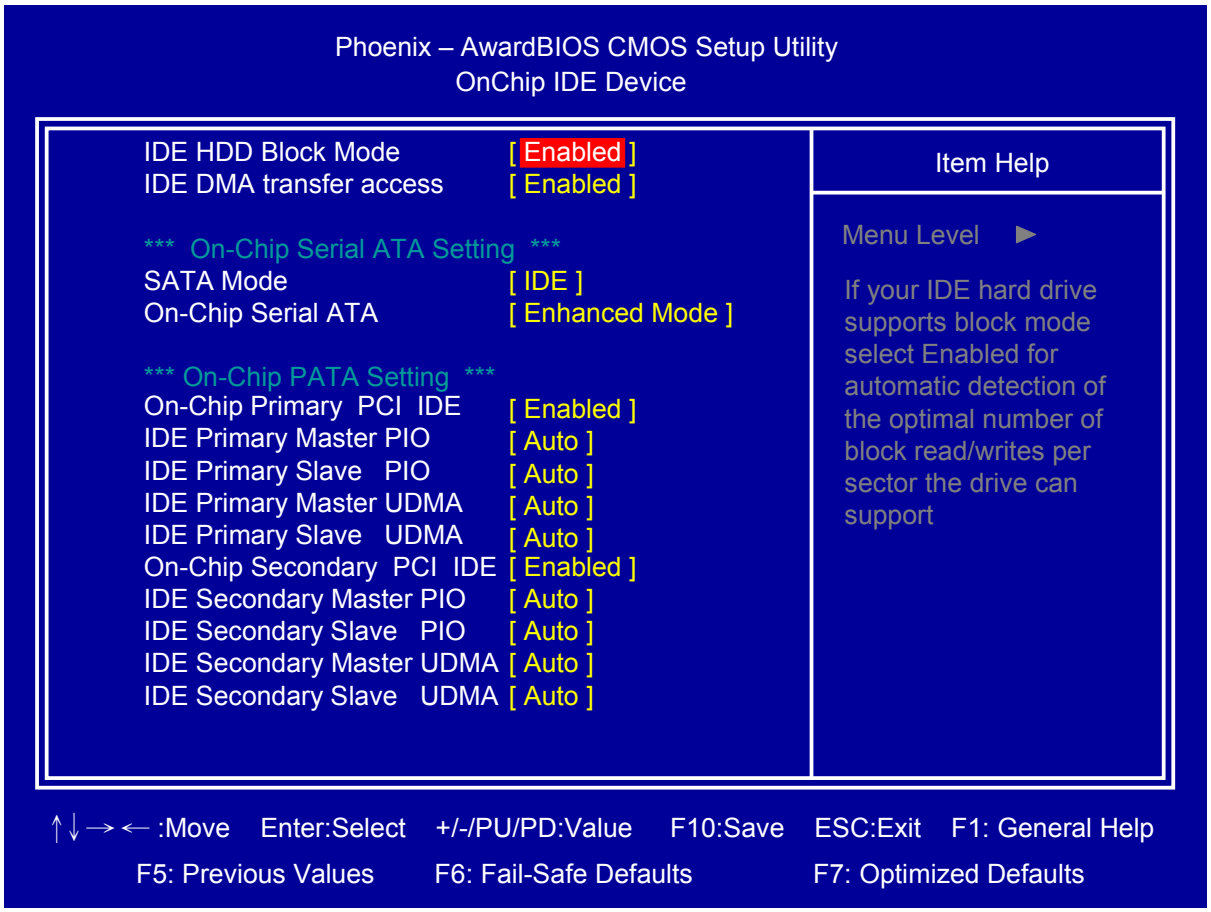
Select BackLight Output Mode: Step1 to Step 10.

## 3.5 Integrated Peripherals



### ☐ OnChip IDE Device

Press <Enter> to set IDE and SATA device configuration.




### ☐ IDE HDD Block Mode

Block mode is also called block transfer, multiple commands, or multiple sector read/write.

### ☐ IDE DMA transfer access

UDMA (Ultra DMA) is a DMA data transfer protocol that utilizes ATA commands and the ATA bus to allow DMA commands to transfer data at a maximum burst rate of 33 MB/s.

### ☐ On-Chip Serial ATA Setting

There have three selections in “SATA mode”:

- IDE: Default
- RAID: Set this item to enable SATA AHCI function for WinXP-SPI+IAA driver support AHCI mode.
- AHCI: Enable SATA RAID function

If you select IDE, there will show “On chip Serial ATA” for you to set. There have five selections in “On chip Serial ATA”:

- Disabled: Disable on-board serial ATA function.
- Auto: Auto detect Serial ATA device.
- Combined Mode: SATA and PATA drives are auto-detected and placed in Legacy mode.
- Enhanced Mode: Default, SATA and PATA drives are auto-detected and placed in Native mode.
- SATA Only: Serial ATA function only.

☐ **On-Chip Primary PCI IDE**
☐ **On-Chip Secondary PCI IDE**

The chipset contains a PCI IDE interface with support for two IDE channels. Select Enabled to activate the IDE interface. Select Disabled to deactivate this interface, if you install a primary and/or secondary add-in IDE interface.

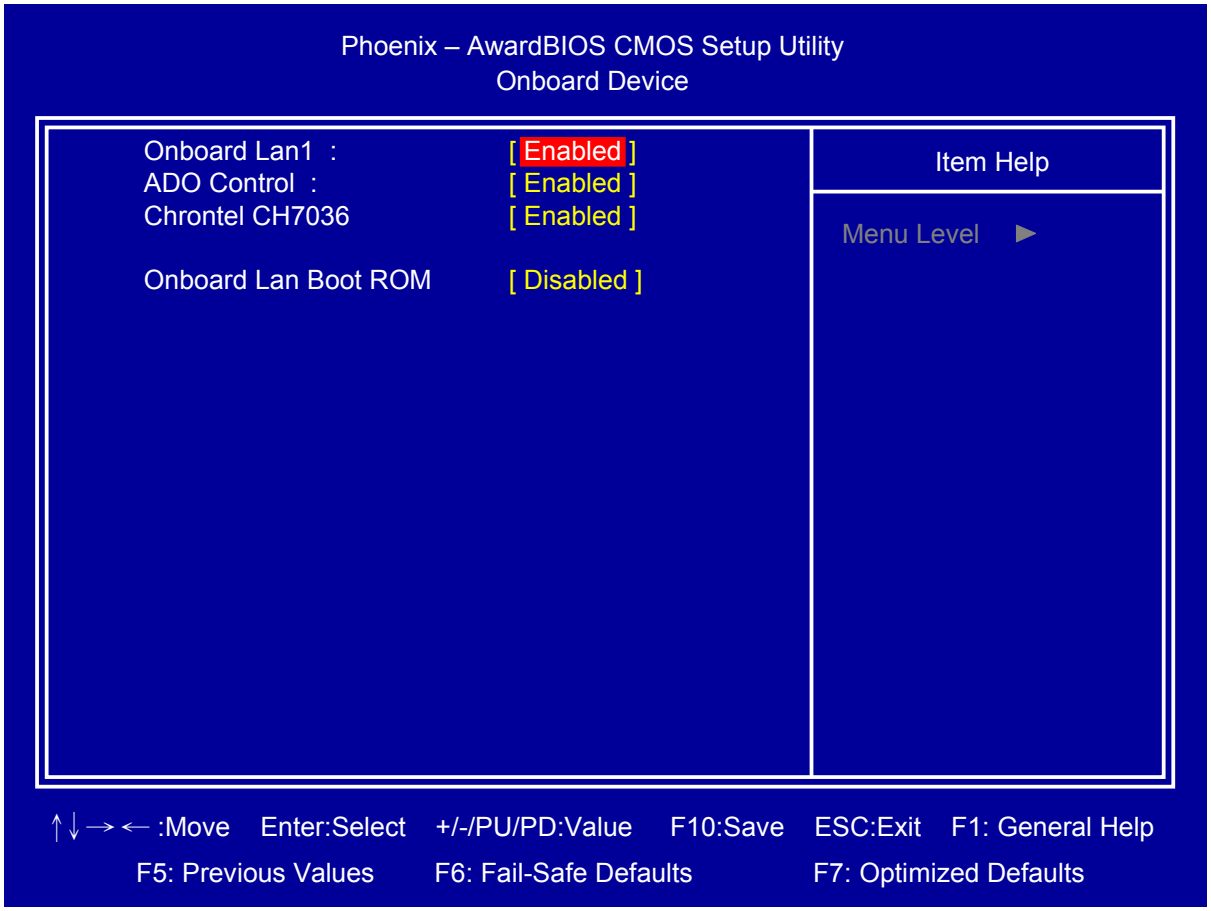
☐ **IDE Primary Master PIO**
☐ **IDE Primary Slave PIO**
☐ **Secondary Master PIO**
☐ **Secondary Slave PIO**

The four IDE PIO (Programmed Input/Output) fields let you set a PIOmode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.

☐ **IDE Primary Master UDMA**
☐ **IDE Primary Slave UDMA**
☐ **IDE Secondary Master UDMA**
☐ **IDE Secondary Slave UDMA**

UDMA (Ultra DMA) is a DMA data transfer protocol that utilizes ATA commands and the ATA bus to allow DMA commands to transfer data at a maximum burst rate of 33 MB/s. When you select Auto in the four IDE UDMA fields (for each of up to four IDE devices that the internal PCI IDE interface supports), the system automatically determines the optimal data transfer rate for each IDE device.

## ☐ Onboard Device




### ☐ Onboard Lan1

Enable/Disable onboard Lan1.

### ☐ ADO Control

Enable/Disable Audio control.

### ☐ Chrontel CH7036

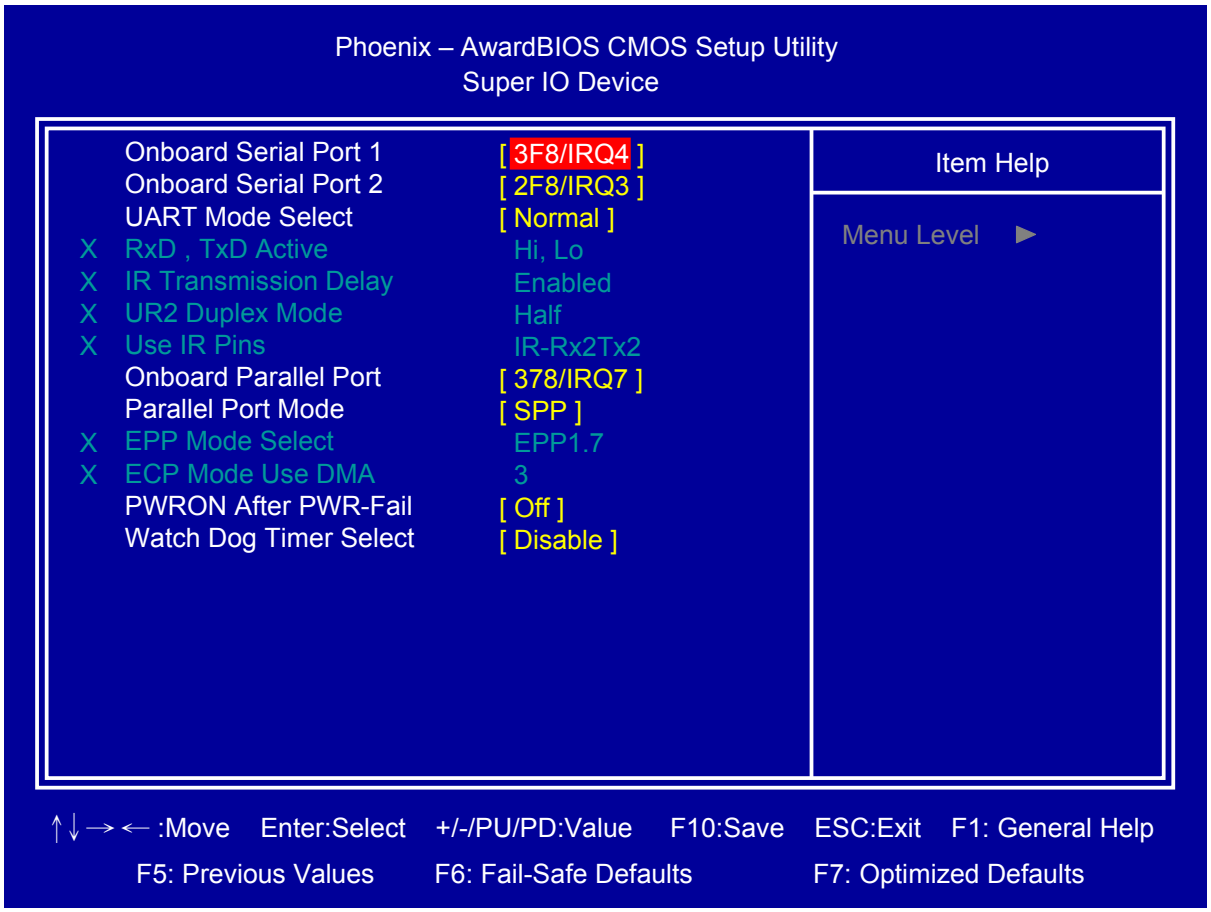
Select Enable or Disabled Chrontel CH7036.

### ☐ Onboard Lan Boot ROM

Decide whether to invoke the boot ROM of the onboard LAN chip

### ☐ Super IO Device

Press <Enter> to select Serial, Parallel and “I” configuration.




### ☐ Onboard Serial Port 1

Select serial port 1 address: Disabled, 3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3, or Auto.

### ☐ Onboard Serial Port 2

Select serial port 2 address: Disabled, 3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3, or Auto.

### ☐ UART Mode Select

Select UART Mode: IrDA, ASKIR, or Normal.

### ☐ Onboard Parallel Port

Select onblard parallel port: Disabled, 378/IRQ7, 278/IRQ5, or 3BC/IRQ7.

☐ **Parallel Port Mode**

Select Parellel Port Mode: SPP, EPP, ECP, ECP+EPP, or Normal.

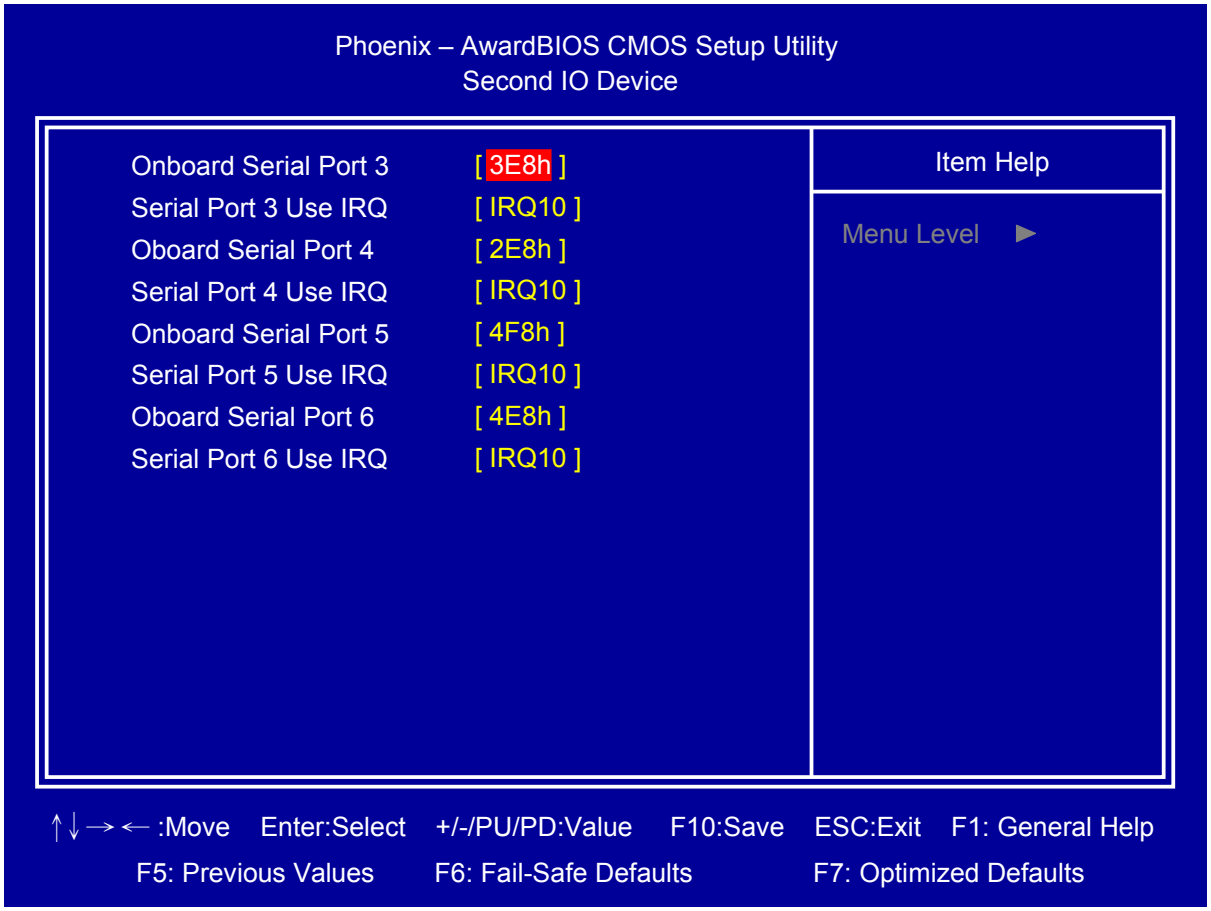
☐ **PWRON After PWR-Fail**

Select Power ON after Off/On

☐ **Watch Dog Timer Select**

Select Watch dog Disabled or set timer value: 10sec, 20sec, 30sec, 40sec, 1 min, 2min, or 4min.

## ☐ Second IO Device




## ☐ Onboard Serial Port 3/4/5/6

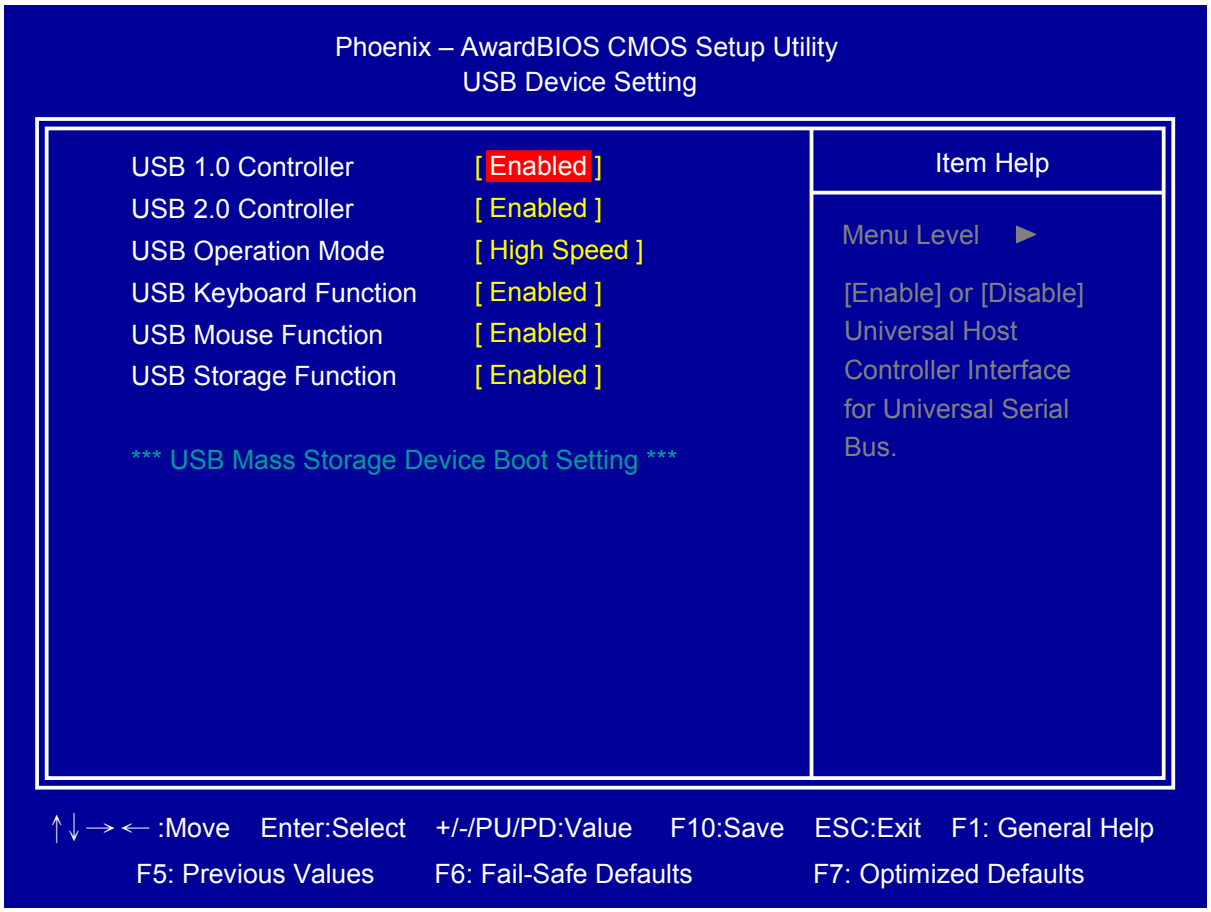
Select serial port address.

## ☐ Serial Port 3/4/5/6 Use IRQ

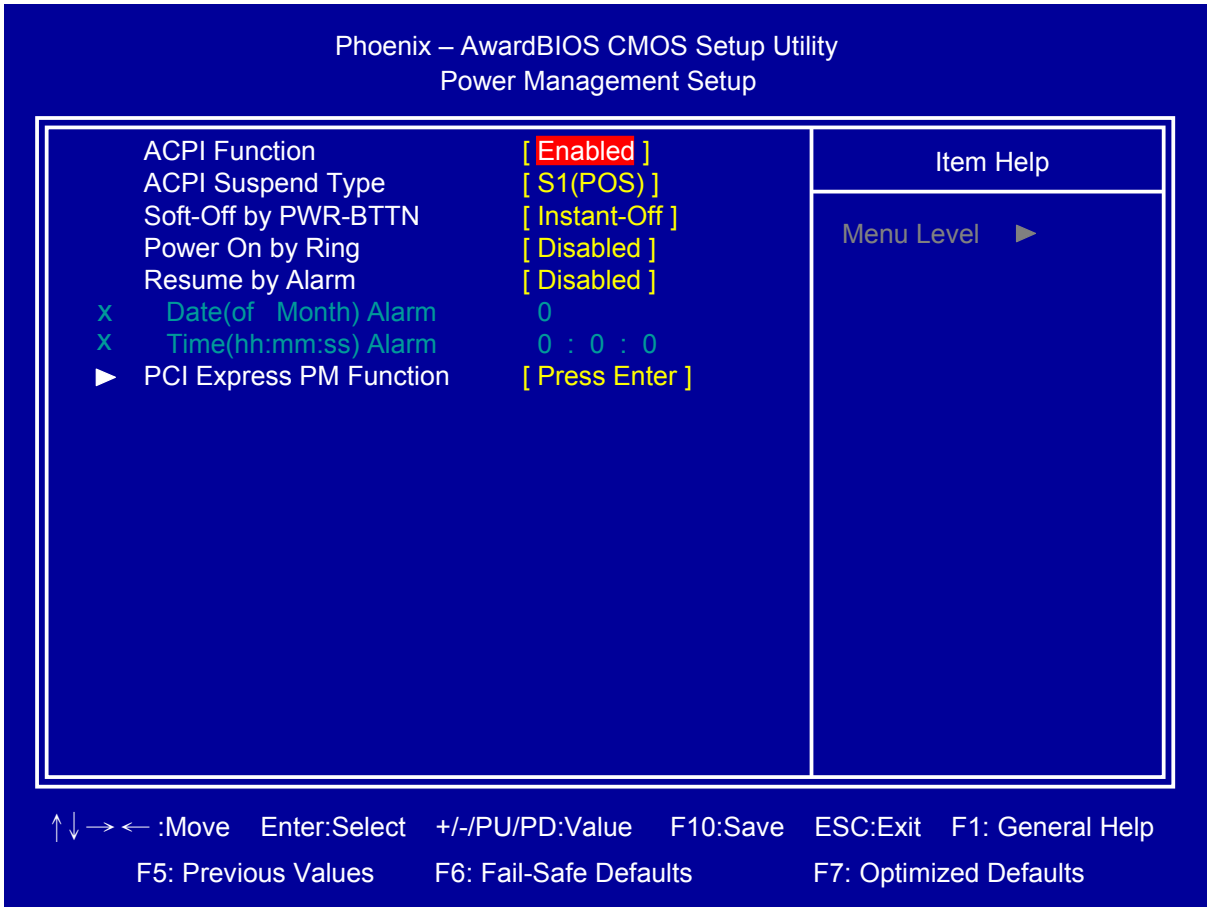
Select serial port IRQ. Support IRQ sharing mode.

## ☐ USB Device Setting

Press <Enter> to select USB device configuration.



## 3.6 Power Management Setup




### ☐ ACPI Function

Select ACPI (Advanced Configuration and Power Management) Enabled/Disabled.

### ☐ ACPI Suspend Type

Select S1(POS) type.

### ☐ Soft-Off by PWR_BTTN

Select power button function,

Instant-off: Press power button will power off instantly.

Delay 4 Sec: Press power button 4 second to power off.

### ☐ Power On by Ring

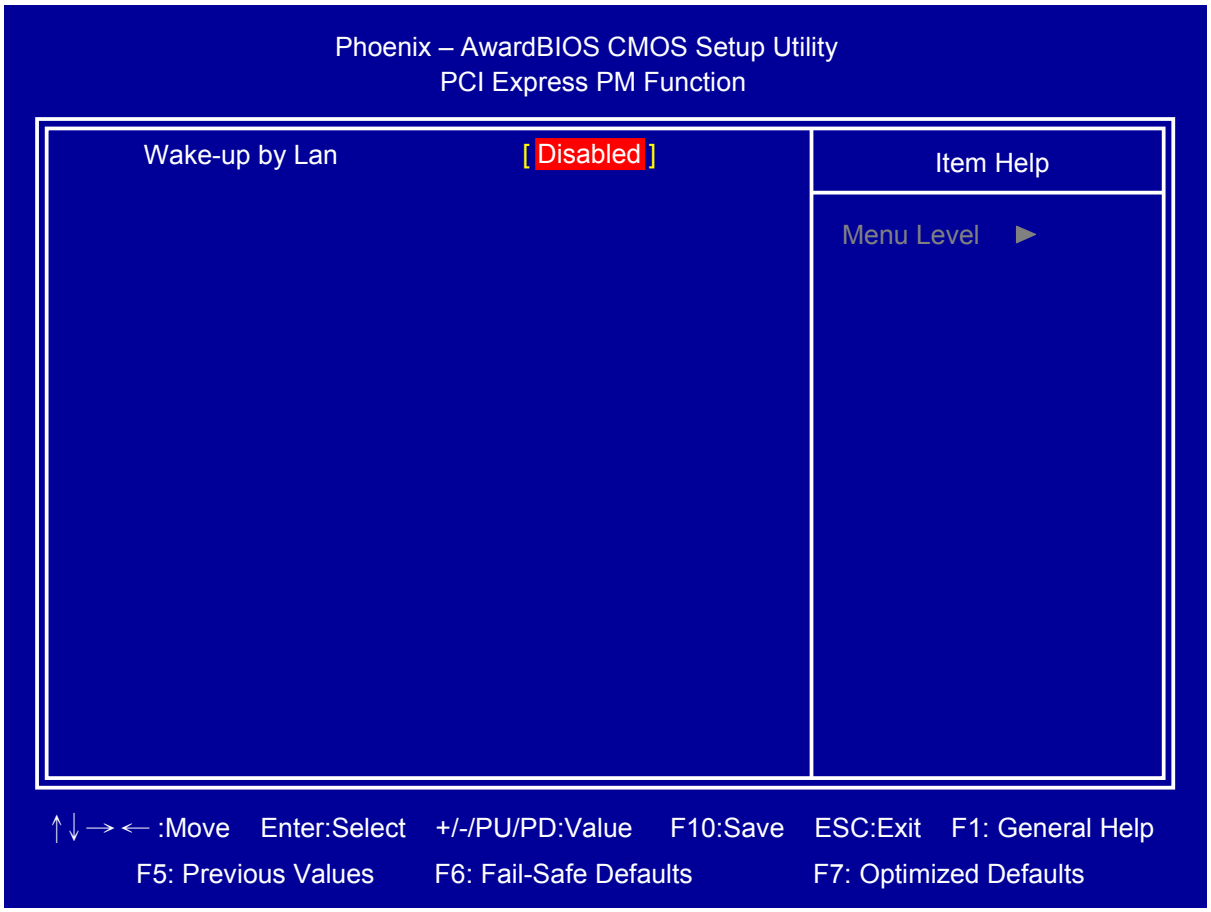
Select Power on by Ring Indicator signal from Modem.

### ☐ Resume by Alarm

Set date and time to power on system from soft-off state.

### ☐ PCI Express PM Function

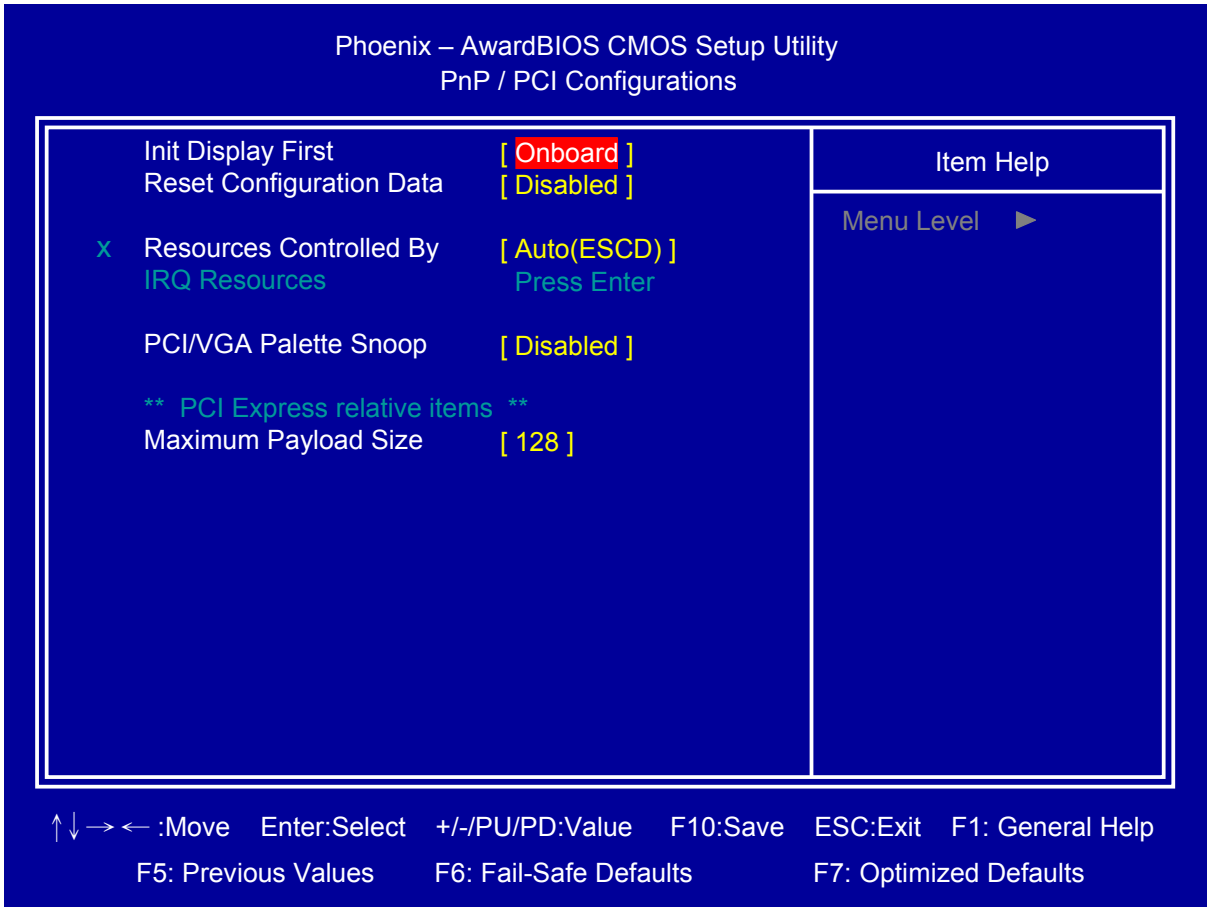
Press <Enter> to select “Wake-up by LAN” Enabled/Disabled.




### ☐ Wake-up by Lan

Select wake-up by Lan Enabled/Disabled.

## 3.7 PnP/PCI Configurations




☐ **Init Display First**

Select initial display by PCI or Onboard device.

☐ **Reset Configuration Data**

Select Enabled to reset Extended System Configuration Data (ESCD) when you exit BIOS setup utility, if you have installed new add-on card and the system reconfiguration has caused such a serious conflict that the OS cannot boot.

☐ **Resources Controlled By**

BIOS can automatically configure all the boot and Plug and Play compatible devices.

If you choose Auto, you cannot select IRQ DMA and memory base address fields, since BIOS automatically assigns them.

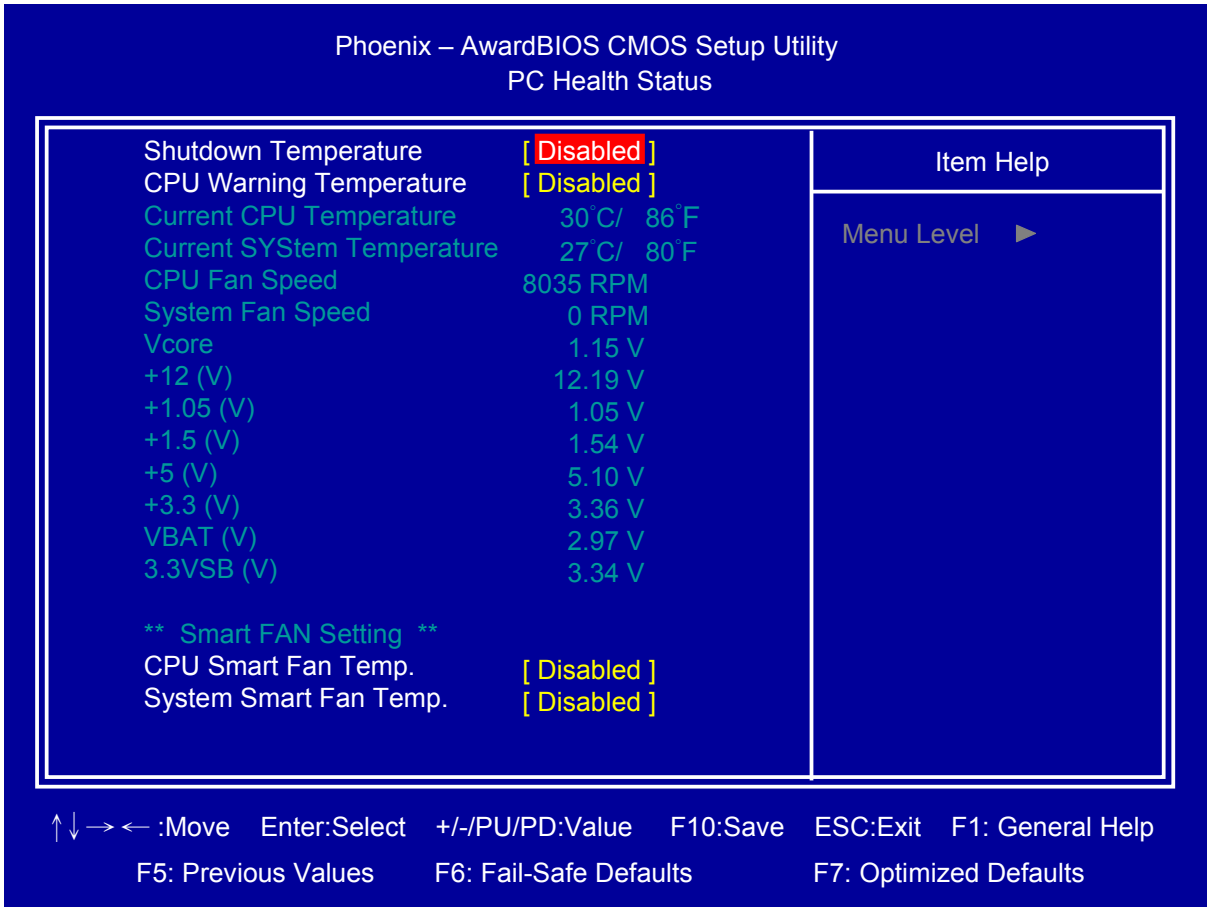
☐ **PCI/VGA Palette Snoop**

Select PCI/VGA Palette Snoop Enabled/Disabled.

☐ **Maximum Payload Size**

Set maximum TLP payload size for the PCI Express devices. The unit is byte.

## 3.8 PC Health Status




☐ **Shutdown Temperature**

If CPU temperature reaches the setting value will automatic shutdown system.

☐ **CPU Warning Temperature**

If CPU temperature reaches the setting value will beep in DOS mode.

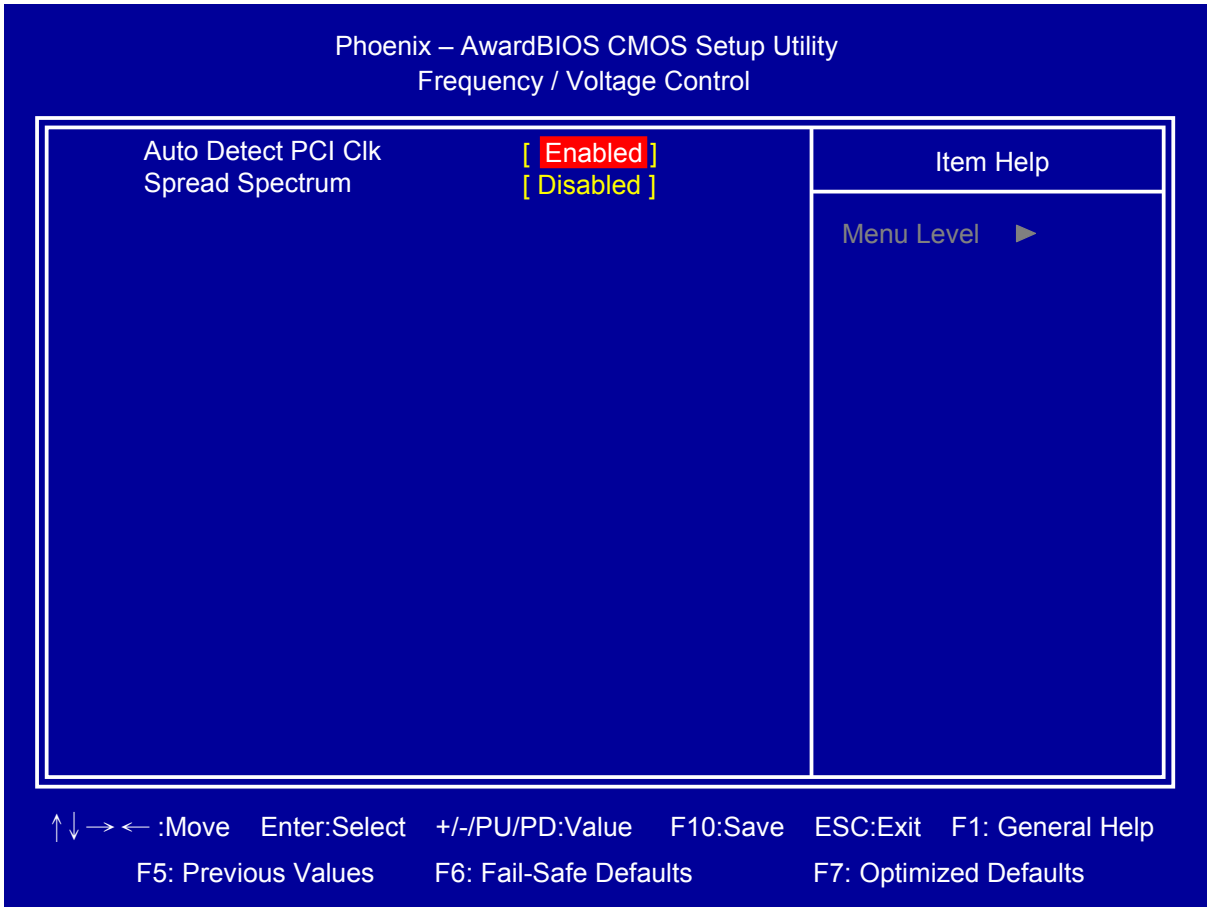
☐ **CPU Smart Fan Temperature**

Setup CPU Smart FAN temperature.

☐ **System Smart Fan Temp.**

Setup System Smart FAN temperature.

## 3.9 Frequency/Voltage Control



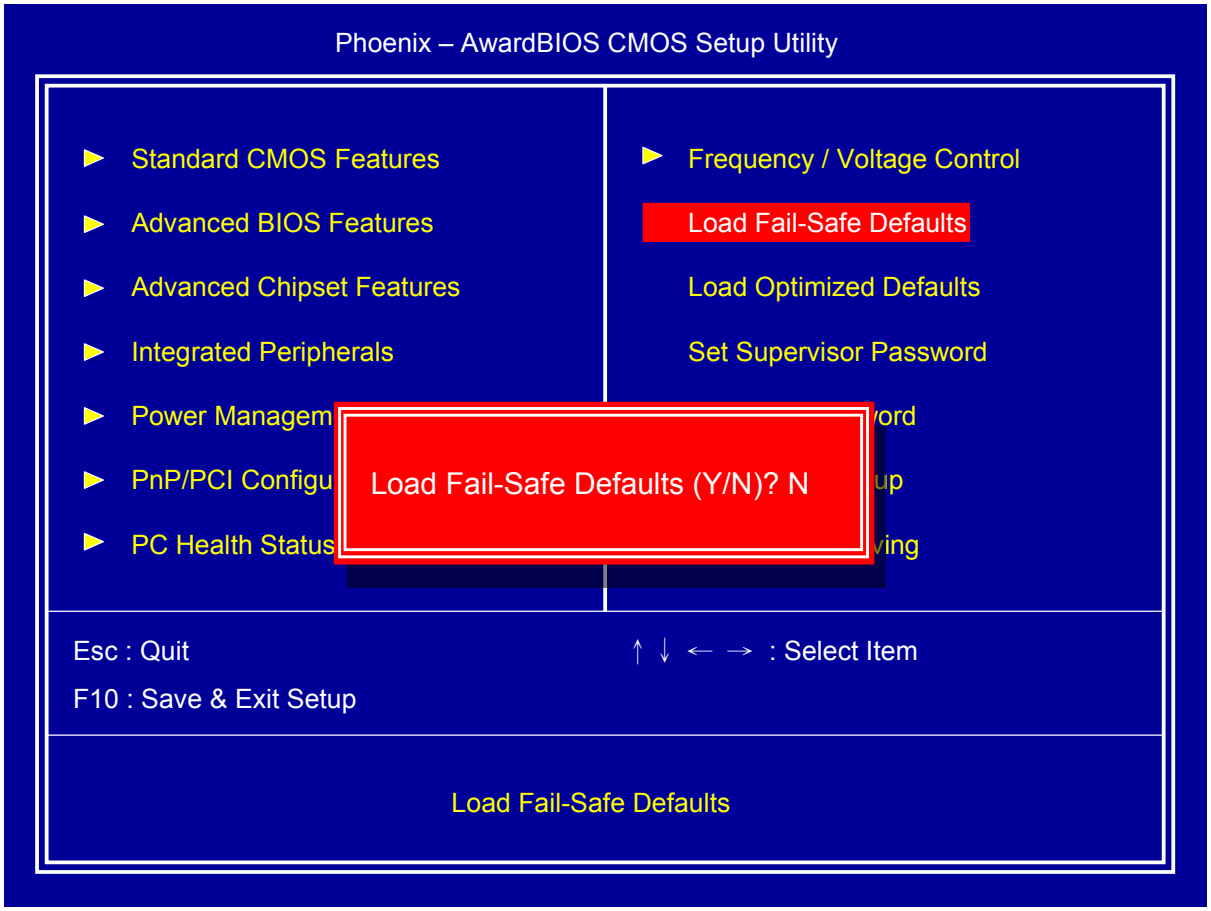

☐ **Auto Detect PCI Clk**

Select “Auto Detect PCI Clk” Enabled/Disabled

☐ **Spread Spectrum**

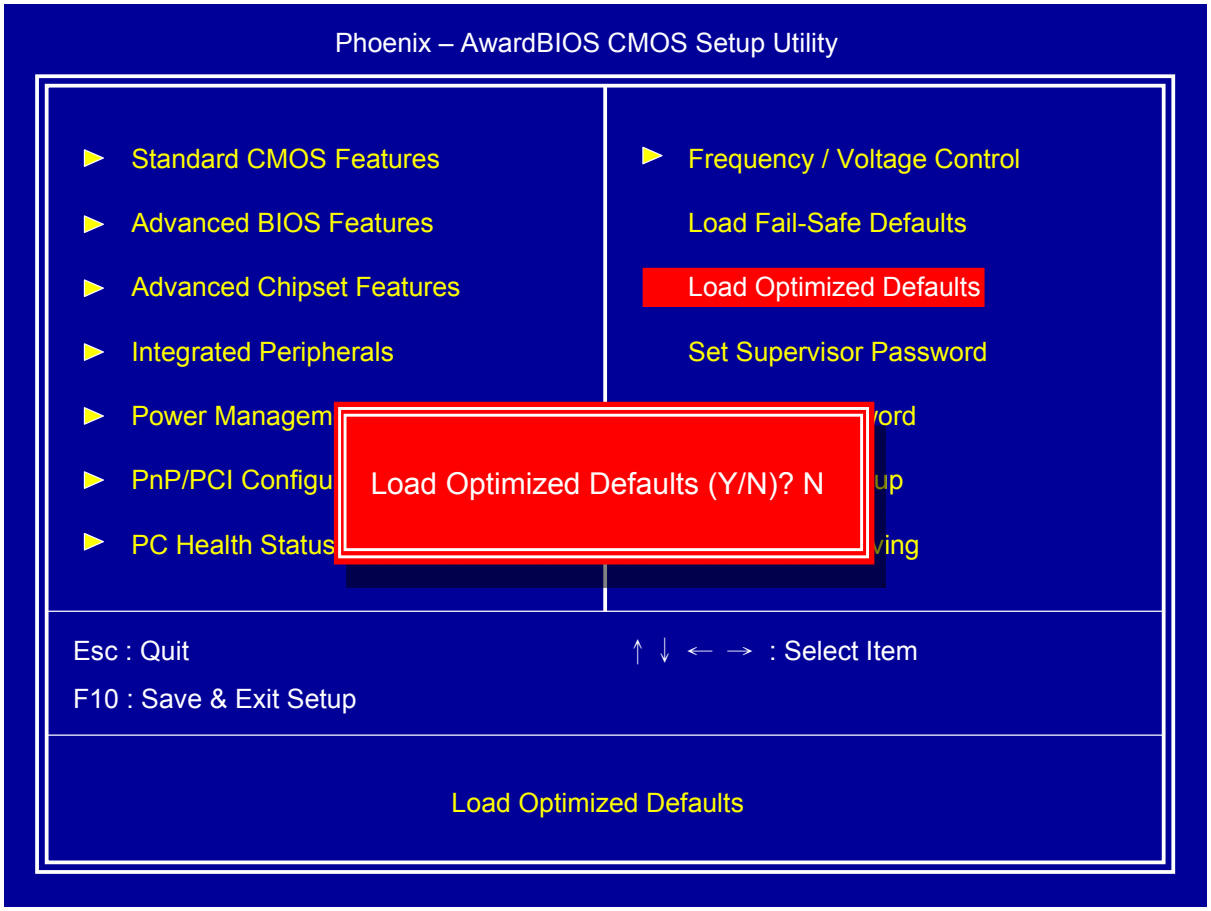
Select “Spread Spectrum” Enabled/Disabled.

## 3.10 Load Fail-Safe Defaults



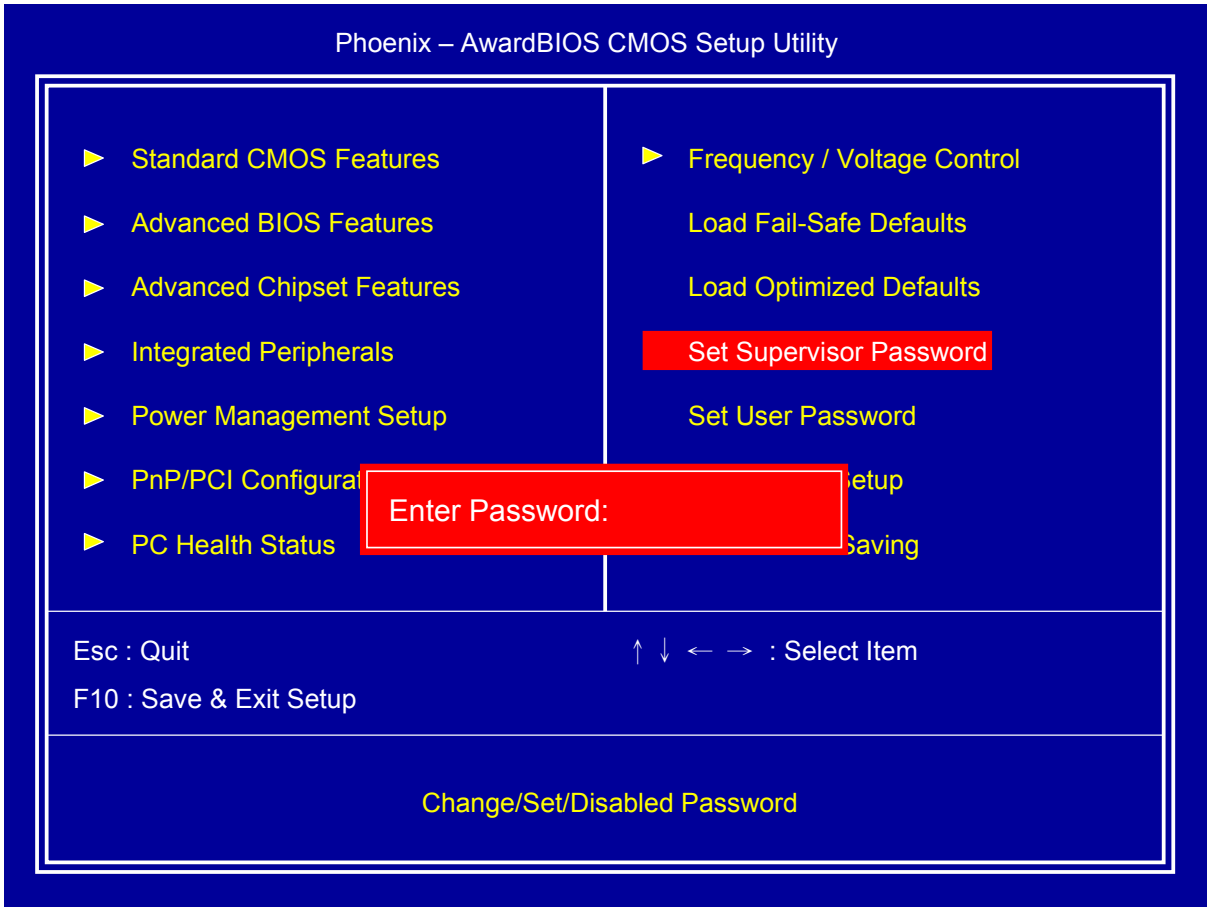

This item will set configuration for non optimized system operation.

## 3.11 Load Optimized Defaults



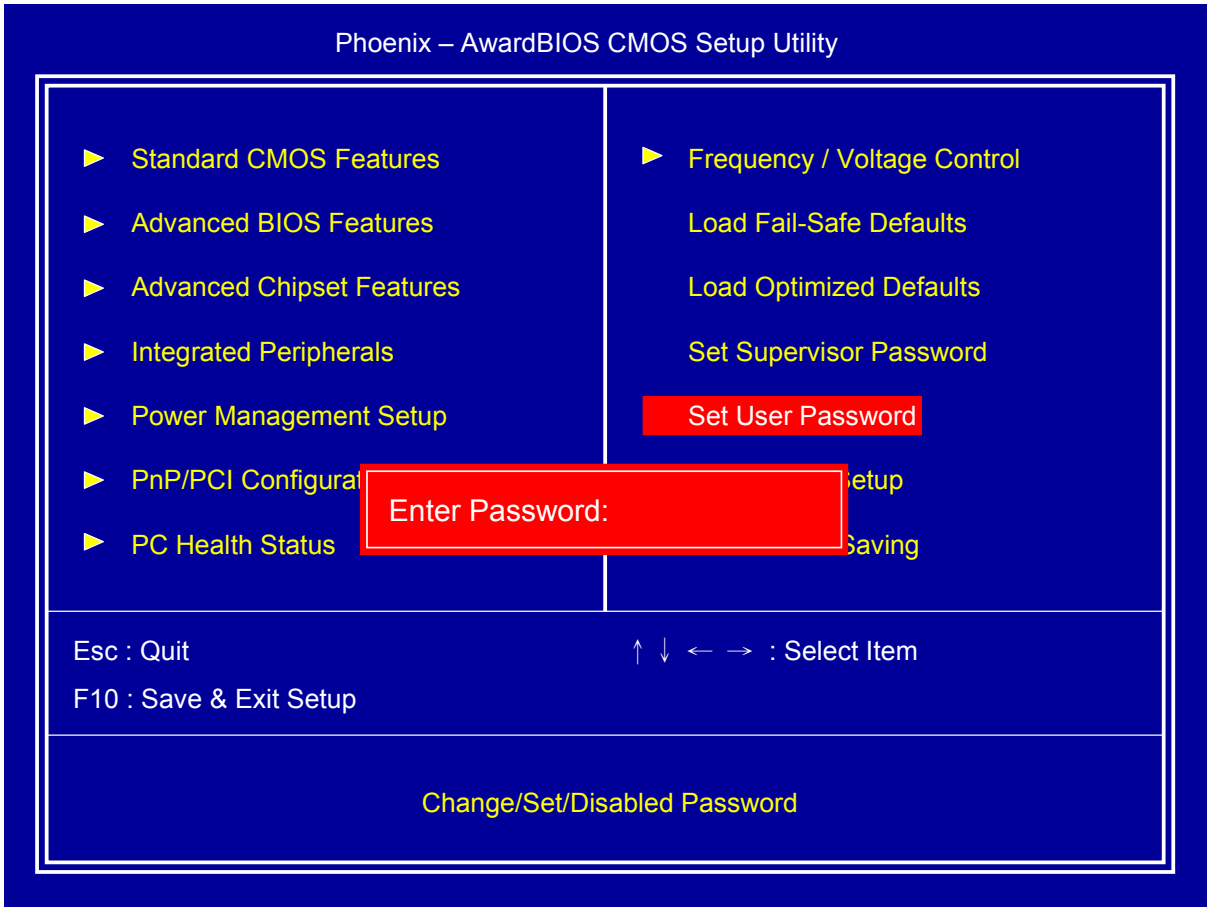

This item will restore factory default setting for optimized system operation.

## 3.12 Set Supervisor Password



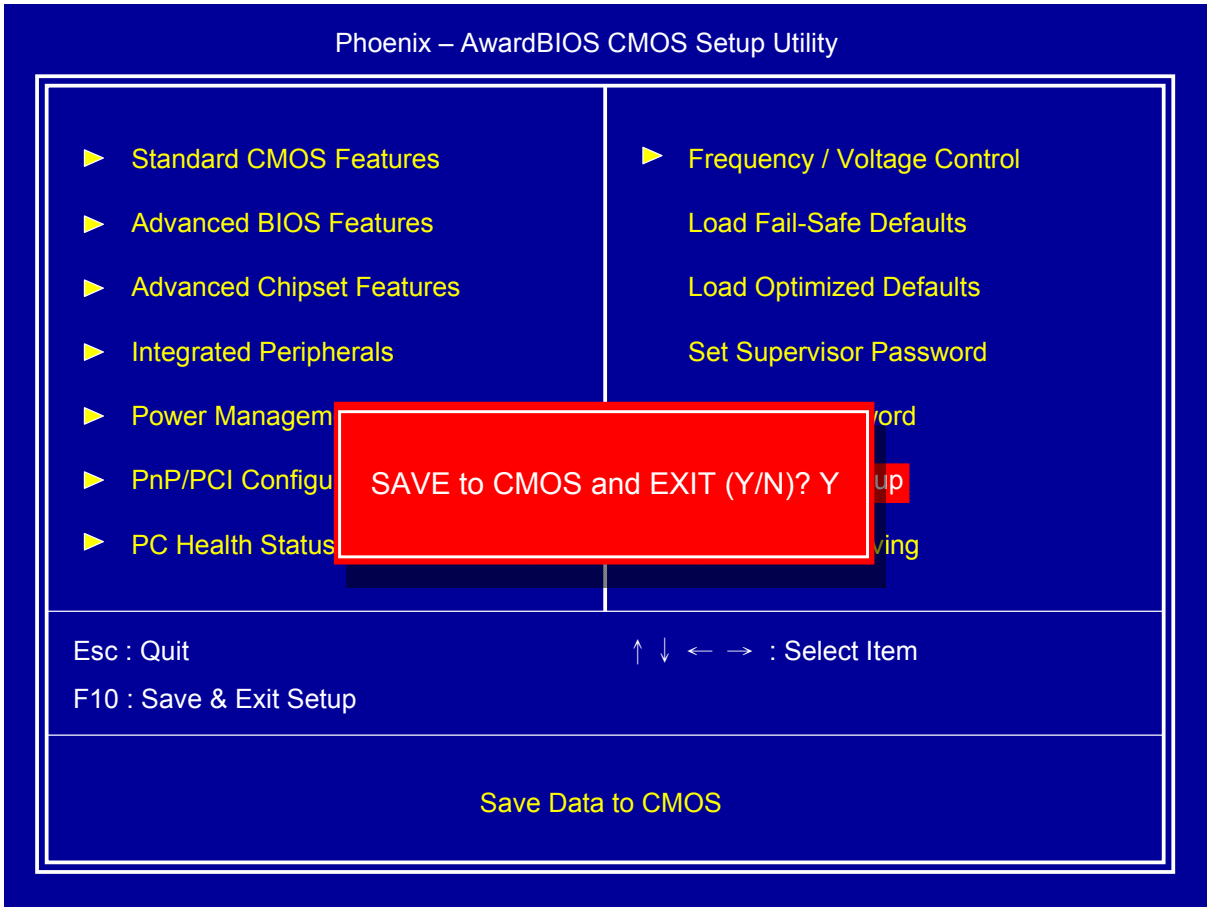

If set supervisor password, it will request typing password to enter BIOS setup utility.

## 3.13 Set User Password



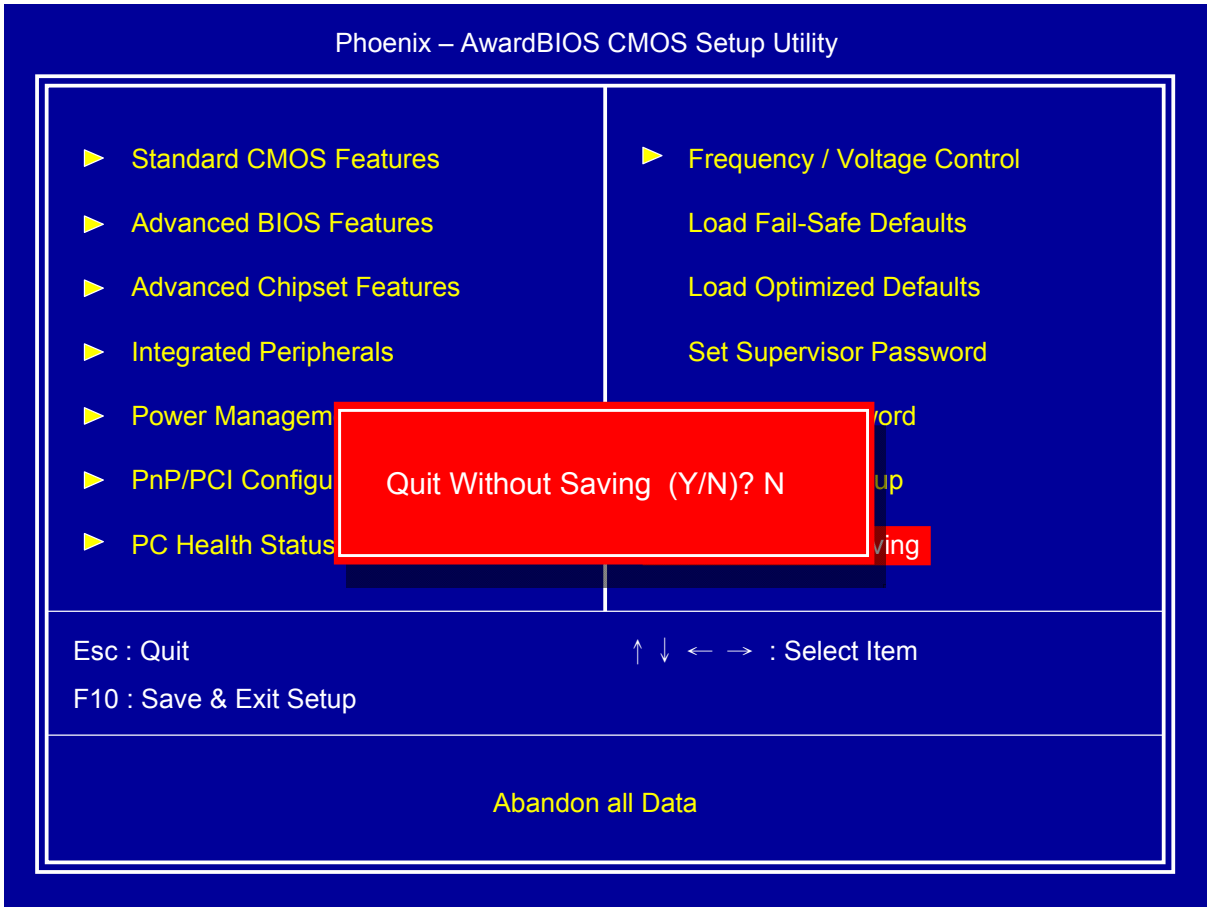

If set user password will request typing password to enter BIOS setup utility, and does not allow modifying configuration.

## 3.14 Save & Exit Setup




This item confirm save configuration or not before exit BIOS setup utility,
Press <Y> and <Enter> to save configuration, then reboot system.
Press <N> and <Enter> will back to BIOS setup utility.

## 3.15 Exit Without Saving




This item confirm save configuration or not before quit BIOS setup utility,
Press <Y> and <Enter> will not save configuration, then reboot system.
Press <N> and <Enter> will back to BIOS setup utility.

# Chapter 4 Drivers Installation

This chapter introduces driver installation information.

Please insert the utility CD to CD-ROM drive, the install menu will appear automatically, if the install menu did not list suitable driver of Operate System or did not appear automatically, please select corresponding driver of utility CD to install.

The Windows XP driver installation steps are as below.

## 4.1 Intel Chipset Device Software

**Step 1.** Click “Next” to continue.

**Step 2.** Read the License Agreement and click “Yes” to continue.

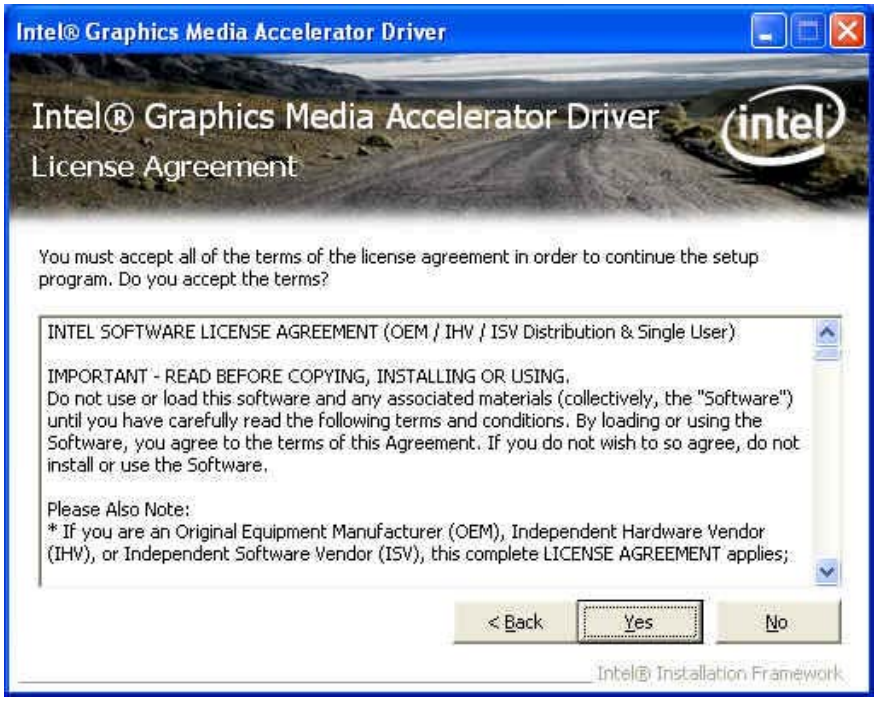

**Step 3.** Click “Next” to continue.

**Step 4.** Click “Finish” to complete setup.

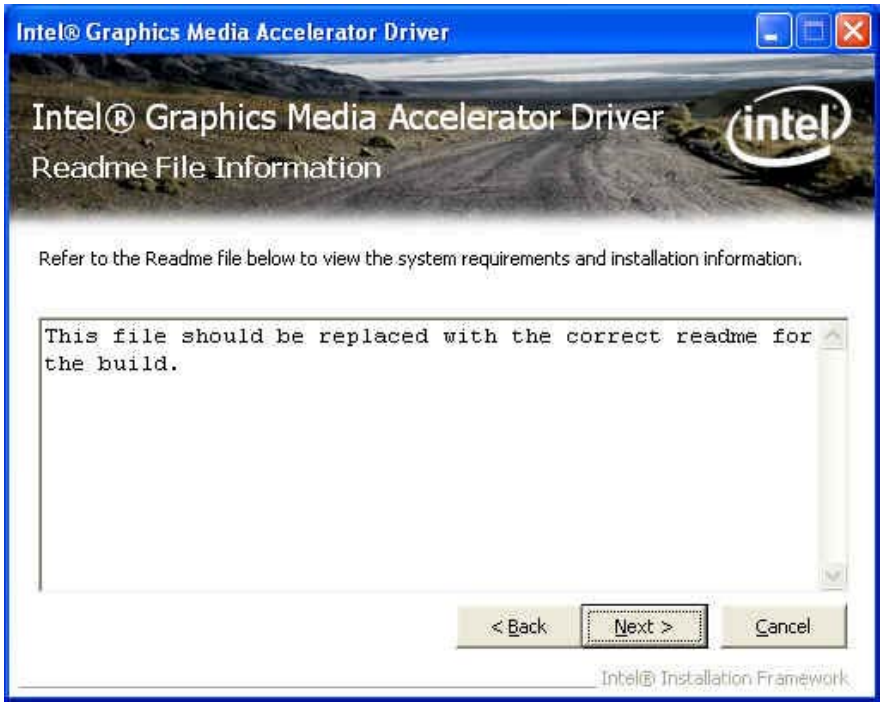
## 4.2 Intel Graphic Media Accelerator Driver

**Step 1.** Click “Next” to continue.


**Step 2.** Read the License Agreement and click “Yes” to continue.



**Step 3.** Click “Next” to continue.

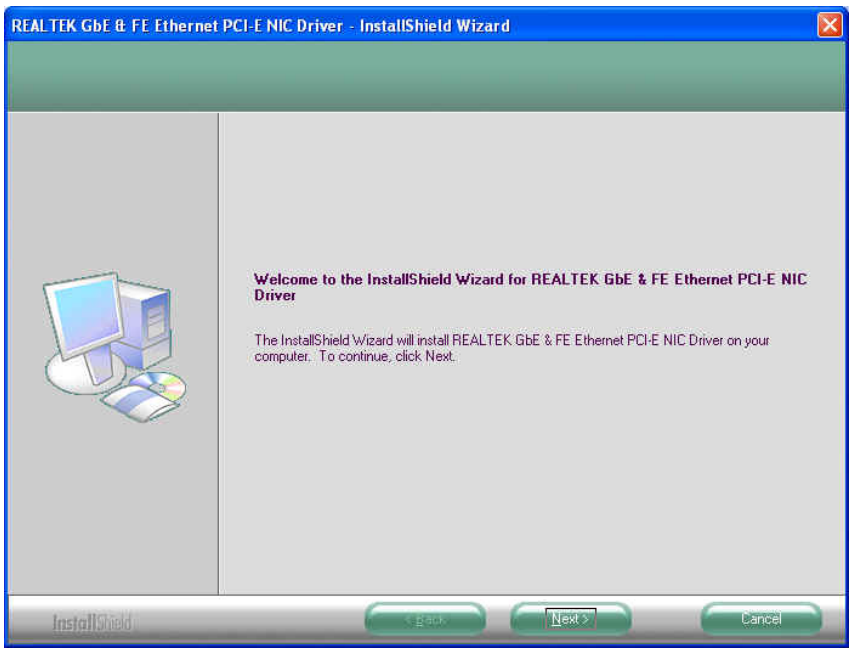



**Step 4.** Click “Next” to continue.

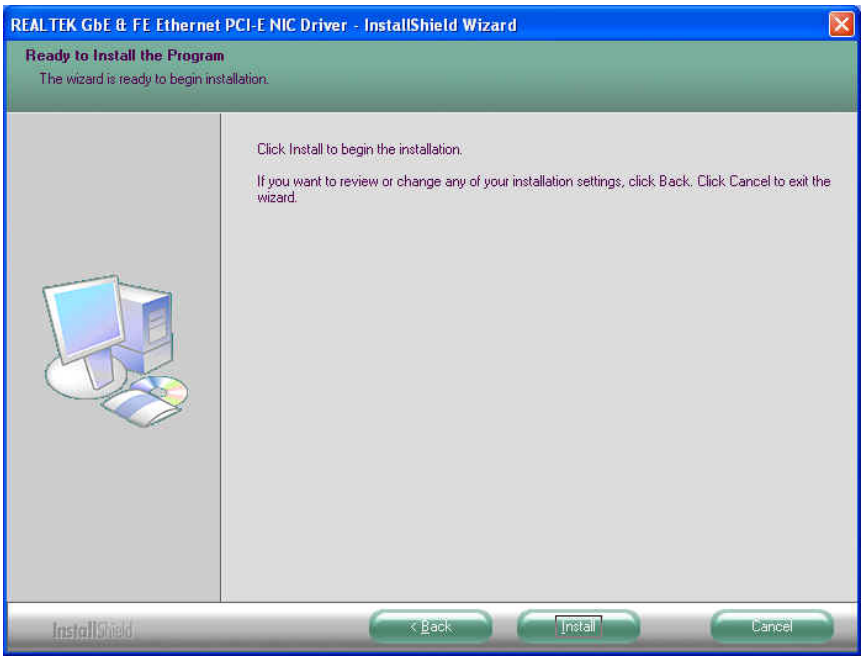
**Step 5.** Click “Finish” to complete setup.

## 4.3 LAN Driver

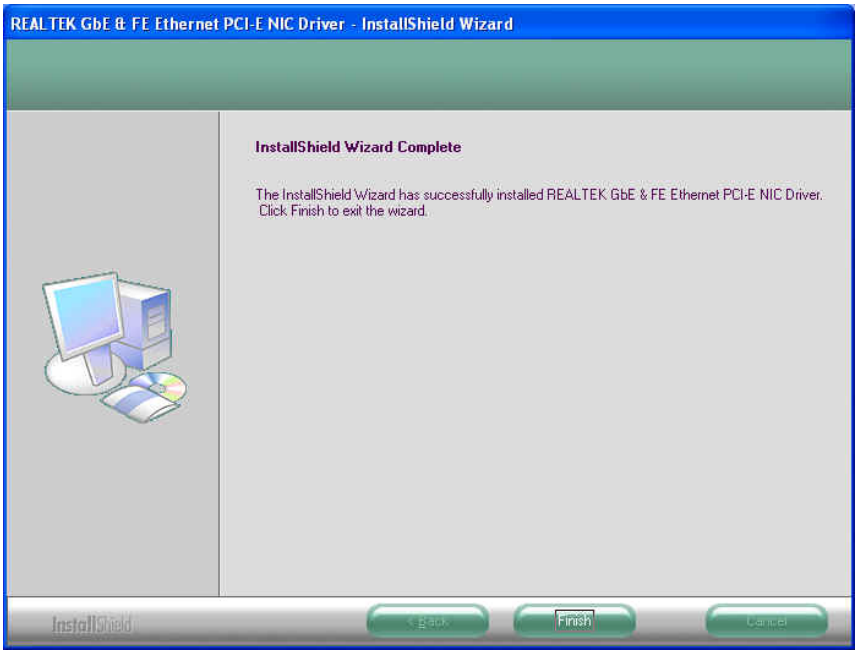
**Step 1.** Click “Next” to continue.




**Step 2.** Click “Install” to continue.

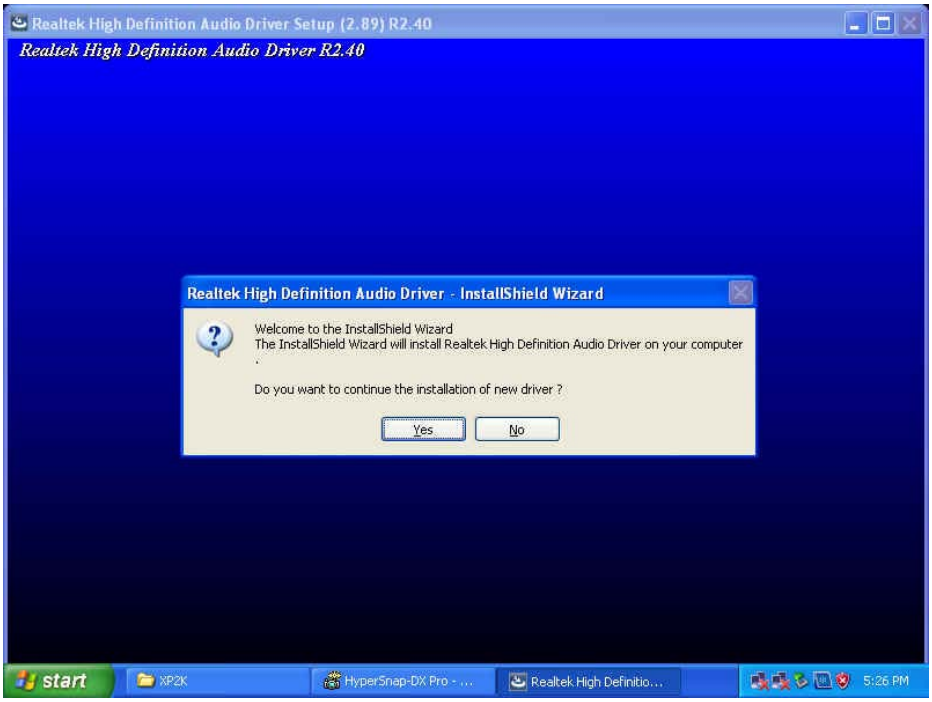


**Step 3.** Click “Finish” to complete setup.

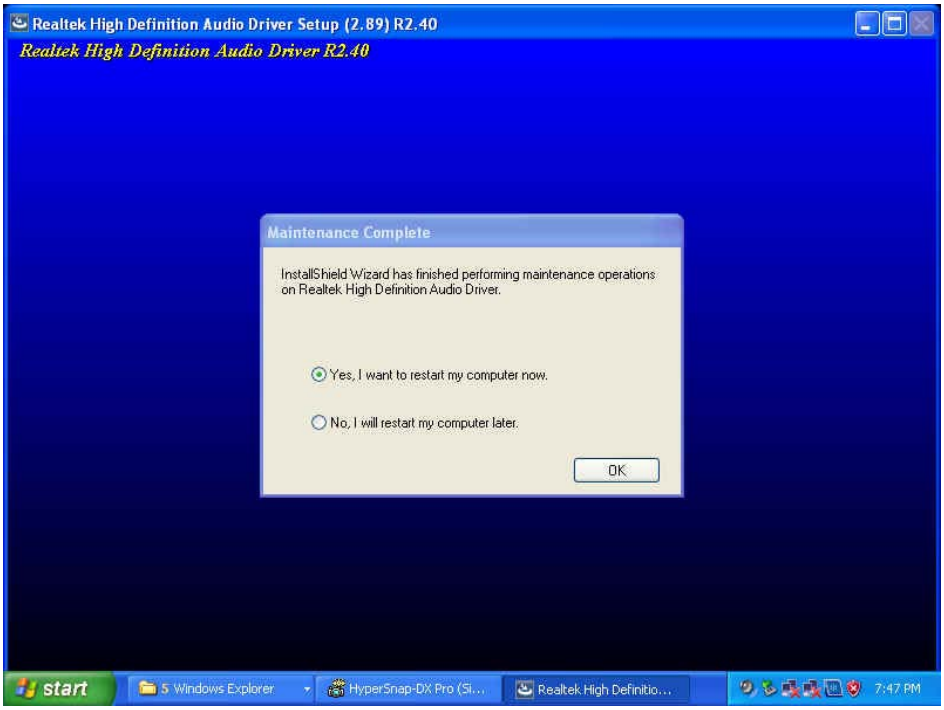


## 4.4 Audio Driver

**Step 1.** Read the License Agreement and click “Yes” to continue.




**Step 2.** Click “ok” to complete setup.



## Appendix-A Watchdog

The working algorithm of the WDT function can be simply described as a counting process. The Time-Out Interval can be set through software programming. The availability of the time-out interval settings by software.

The System Board allows users control WDT through dynamic software programming. The WDT starts counting when it is activated. It sends out a signal to system reset, when time-out interval ends. To prevent the time-out interval from running out, a re-trigger signal will need to be sent before the counting reaches its end. This action will restart the counting process.

WDT program should keep the counting process running under normal condition. WDT should never generate a system reset unless the system runs into troubles.

The related Control Registers of WDT are all included in the following sample program that is written in C language. User can fill a non-zero value into the Time-out Value Register to enable/refresh WDT. System will be reset after the Time-out Value to be counted down to zero. Or user can directly fill a zero value into Time-out Value Register to disable WDT immediately.

To ensure a successful accessing to the content of desired Control Register, the sequence of following program codes should be step-by-step run again when each register is accessed.

For more information about WDT, please refer to Winbond W83627EHF data sheet.

There are two PnP I/O port addresses that can be used to configure WDT,

1) 0x2E:EFIR (Extended Function Index Register, for identifying CR index number)

2) 0x2F:EFDR (Extended Function Data Register, for accessing desired CR)

Below are some example codes, which demonstrate the use of WDT.

```
// Enter Extended Function Mode
outp(0x002E, 0x87);
outp(0x002E, 0x87);

// Assign Pin 77 to be a WDTO# Signal
outp(0x002E, 0x2D);
outp(0x002F, inp(0x002F) & 0xFE);

// Select Logic Device 8
outp(0x002E, 0x07);
outp(0x002F, 0x08);

// Active Logic Device 8
outp(0x002E, 0x30);
outp(0x002F, 0x01);

//Clear WDTO# Status
outp(0x002E, 0xF7);
outp(0x002F, inp(0x2F) & 0xEF);

// Select Count Mode (Second / Minute)
outp(0x002E, 0xF5);
outp(0x002F, (inp(0x002F) & 0xF7) | ( Count-mode Register  & 0x08));

// Set Time-out Value
outp(0x002E, 0xF6);
outp(0x002F,  Time-out Value Register );

// Exit Extended Function Mode
outp(0x002E, 0xAA);
```

**Definitions of Variables:**

Value of Count-mode Register:

1) 0x00 -- Count down in seconds (Bit3=0)

2) 0x08 -- Count down in minutes (Bit3=1)

Value of Time-out Value Register:

1) 0x00 -- Time-out Disable

2) 0x01~0xFF -- Value for counting down

## Appendix-B GPIO

The System Board provides 4 dedicated output ports and 4 programmable I/O ports that can be individually configured to perform a simple I/O function. Users can configure 4 programmable I/O ports to become an input or output port by programming register bit of I/O Selection .*To invert port value, the setting of Inversion Register has to be made*(Note). Port values can be set to read or write through Data Register.

Note : Only 4 programmable I/O ports support.

Additionally, 4 Digital Output ports amplified signals from GPIO ports. There are open-drain buffers, which can offer greater driving capacity up to 100mA.

For more information about GPIO, please refer to Winbond W83627EHF data sheet.

The related Control Registers of GPIO are all included in the following sample program that is written in C language. To ensure a successful accessing to the content of desired Control Register, the sequence of following program codes should be step-by-step run again when each register is accessed.

There are two PnP I/O port addresses that can be used to configure GPIO ports,

1) 0x2E - EFER (Extended Function Enable Register, for entering Extended Function Mode)
   - EFIR (Extended Function Index Register, for identifying CR index number)

2) 0x2F - EFDR (Extended Function Data Register, for accessing desired CR)

Below are some example codes, which demonstrate the use of GPIOs.

```
// Enter Extended Function Mode
outp(0x002E, 0x87);
outp(0x002E, 0x87);

// Assign Pin121-128 to be GPIO port
outp(0x002E, 0x29);
outp(0x002F, inp(0x002F) | 0x01);
```

```
// Select Logic Device 7
outp(0x002E, 0x07);
outp(0x002F, 0x07);

// Active Logic Device 7
outp(0x002E, 0x30);
outp(0x002F, 0x01);

// Select Inversion Mode
outp(0x002E, 0xF2);
outp(0x002F, (inp(0x002F) & 0x3C) | ( Inversion Register  & 0xC3));

// Select I/O Mode
outp(0x002E, 0xF0);
outp(0x002F, (inp(0x002F) & 0x3C) | ( I/O Selection Register  & 0xC3));

// Access GPIO ports
outp(0x002E, 0xF1);
outp(0x002F, (inp(0x002F) & 0x3C) | ( Output Data  & 0xC3));
or
 Input Data  = inp(0x002F);

// Exit Extended Function Mode
outp(0x002E, 0xAA);
```

**Definitions of Variables:**

Each bit in the lower nibble of each Register represents the setting of a GPIO port.

| Super IO Pin | Bit | GPIO DIO |
|---|---|---|
| 128 | 0 | GPIO DIO-Out0 |
| 127 | 1 | GPIO DIO-Out1 |
| 126 | 2 | GPIO DIO-In0 |
| 125 | 3 | GPIO DIO-In1 |
| 124 | 4 | GPIO DIO-In2 |
| 123 | 5 | GPIO DIO-In3 |
| 122 | 6 | GPIO DIO-Out2 |
| 121 | 7 | GPIO DIO-Out3 |

Value of Inversion Register:
When set to a '1', the incoming/outgoing port value is inverted.
When set to a '0', the incoming/outgoing port value is the same as in Data Register.

Value of I/O Selection Register:
When set to a '1', respective GPIO port is programmed as an input port.
When set to a '0', respective GPIO port is programmed as an output port.

Value of Output Data / Input Data:
If a port is assigned to be an output port, then its respective bit can be read/written.
If a port is assigned to be an input port, then its respective bit can be read only.

Note :
**DIO_IN0/DIO_IN1/DIO_IN2/DIO_IN3** are programmed as **Inputs** by BIOS default.

| Parameter | Conditions |
|---|---|
| VinH | min +1.857V |
| VinL | max +0.525V |
| Rated Vin | -8V ~ +12V |
| NC Status | High by Default |

** Attention : If **DIO_IN0/DIO_IN1/DIO_IN2/DIO_IN3 are programmed as Output signal, they can only offer a normal signal transfer.(NOT amplified signals.)**

| Parameter | Conditions |
|---|---|
| VoutH | 3.3V thru 10k |
| VoutL | 0V thru 1k |

**DIO_OUT0/DIO_OUT1/DIO_OUT2/DIO_OUT3 are fixed** as **Outputs** by BIOS.

| Parameter | Conditions |
|---|---|
| Open-drain buffer | Power-on default = Open |
| Driving Capacity | max 100mA continue |